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TABLE OF CONTENTS

	PAGE
Notes from the President's Desk	1
December Meeting of the Board of Trustees	2
Annual Meeting of the Corporation	4
The Second Campaign at Bethel. James L. Kelso	5
Further Explorations in the Negeb. Nelson Glueck	10
Hyksos Fortifications and the Battering Ram. Yigael Yadin	23
An Archaic South-Arabian Inscription in Vertical Columns. A. Jamme, W. F.	32
Three New Books of General Interest	39

For Indexes to the BULLETIN see Nos. 50, 74, 76, 80, 103, 105.

NOTES FROM THE PRESIDENT'S DESK

As new President I am rather overwhelmed by the responsibility that has been thrust upon me by the resignation of Dr. Kraeling. Fortunately it has been my privilege to work very closely with him during the past four years, so that the problems involved are not completely strange. In addition it is well to point out that he has left me a well organized administration with the records in order. Relations with our supporting

institutions are harmonious and they now make the largest group in the history of the Schools; we have eight more Corporation Members than we had a year ago (99 in all). Our reputation at home and abroad is high in the world of scholarship. It was good to be able to work with Dr. Kraeling, and any success that I may have will be due to the example that he has set.

Work at Jericho will have resumed by the time this is in print, with the Schools as a full-fledged partner again. Dr. Morton and a number of the students will be in residence at Jericho during the digging season.

There was some discussion at the Corporation Meeting at Christmas about acquiring photographs for use in class room work. One of the elements involved, that was not mentioned at the meeting, is the question of copyright or control of the use of these pictures. Every expedition has its own ideas about such matters and it is suggested that each institution should deal directly with the expedition or institution owning the material.

The President would recommend to you the two new chairmen of the School Committees: Dr. William L. Reed of the Jerusalem School, and Dr. Samuel N. Kramer of the Baghdad School. They need your help particularly when it comes to the selection of staff, and would appreciate forthright letters of reference. These are your schools and we can only serve you when you send us your best men as students and staff.

The Near East is changing rapidly and we are in a position to contribute much that is helpful. Working together we can have a positive share in the future of that part of the world.

A. Henry Detweiler

January, 1955

DECEMBER MEETING OF THE BOARD OF TRUSTEES

The winter meeting of the Board of Trustees was held at the Jewish Institute of Religion in New York City beginning at 1:50 p.m. on December 27, 1954. Present of the Trustees were Messrs. Albright (First Vice-President), Glueck, Kraeling (President), May, Phelps, Rabinowitz, Reynolds and Scott: of the Associate Trustees, Messrs. Colt, Dentan, Kramer, Pfeiffer and Reed; of the Evaluation Committee, Mr. Gehman; by invitation Messrs. Detweiler (Jerusalem School Committee), Goetze (Baghdad School Committee), Knight (Provident Trust Company), Muilenburg and Mrs. Walton (Business Manager).

President Kraeling called the meeting to order, called the roll and stated that he had received expressions of regret from the following who were unable to be present: Messrs. Wilkinson, Speiser, Dodge, Brown, Wilson and Warrington. The minutes of the meeting of April 12, 1954 were approved as printed in Bulletin, No. 135. The President called attention to the memorial on Dr. Ludlow Bull in the same issue of the Bulletin and stated that he had expressed the sympathy of the Board to Mrs. Bull.

The fifty-second Annual Report of the President was accepted as mimeographed and distributed. The President supplemented his report by calling attention to the death of Stephen Penrose, President of the American University in Beirut, and to the resignation of Allen O. Whipple, M.D. It was voted to express to Dr. Whipple the appreciation of the Board for his service as a Trustee of the School's

r a period of six years, and the hope that his interest in the Schools may tinue. It was reported also by the President that at the Jerusalem School the ce had been moved, sewer connections made, archaeological equipment received m the Oriental Institute, and the order for tires and furnace equipment processed authorized.

As matters of information the President reported as follows: Of the 80 questnaires sent out to Corporation Members, 31 replies received indicated an interest such teaching aids as object collections, maps, photographs and slides. The sident stated that the number and nature of the replies had not produced the e of information that would be necessary if a foundation were to provide the ds with which the Schools might produce such aids. The President further orted that Miss T. Goell is at work in Münster on the materials from the avations at Nimrud Dagh. The following institutions have been elected to rporation Membership in the Schools since the spring meeting:

McGill University
Wake Forest College
Asbury Theological Seminary

Attention was called to the wisdom of listing only educational institutions as Institutional Corporation Members; individuals, congregations and corporations will be listed in a separate category.

In the absence of the Treasurer, Mr. Warrington, the Annual Financial report was presented by Mr. Knight for the Assistant Treasurer. It was voted to accept the report as mimeographed and distributed, with appreciation to Mr. Knight for his patience and competence in handling the financial accounts of the Schools.

The President presented the following recommendations of the Nominating Committee:

President, A. Henry Detweiler
First Vice-President, W. F. Albright
Second Vice-President, E. A. Speiser
Secretary, Frank E. Brown
Treasurer, John W. Warrington
Assistant Treasurer, The Provident Trust Company
Trustee to fill the term of Ludlow Bull, A. Henry Detweiler
Associate Trustee, James Muilenburg
Member of Executive Committee, Carl H. Kraeling
Business Manager, G. R. Walton
Counsel, Pepper, Bodine, Frick, Scheetz and Hamilton

President Kraeling expressed regrets that the burden of other duties prevented him from continuing as President. It was voted that a single ballot be cast for the slate as presented by the Nominating Committee.

The written report of the Director of the Jerusalem School, Dr. Muilenburg, was received with thanks.

On the recommendation of the Chairman of the Jerusalem School Committee, Professor Detweiler, it was voted to make the following appointments for 1955-56:

Director, Monsignor Patrick W. Skehan
Annual Professor, George E. Mendenhall
Fellow, Ray L. Cleveland

It was also voted to appoint the following as Fellows provided that funds are available: Marc H. Lovelace (Jerusalem School) and Carl Katz (Israel). Father Leandre Poirier, O. F. M. was appointed Honorary Fellow.

The written report of the Director of the Baghdad School, Professor Goetze, was received with thanks. Professor Goetze also reported on the projected plans, the finances of the School, the *Journal of Cuneiform Studies*, and made the following recommendations which were approved by the Board: (1) that participation of the Baghdad School in a second season of joint excavation with the Oriental

Institute in Nippur be approved, and that the Director of the School be authorized to enter into formal negotiations with the Oriental Institute and the Director of Antiquities of the Government of Iraq to implement this plan; (2) that the Director of the Baghdad School be appointed Annual Professor of the School for 1955-56 to represent the School on the joint expedition, his expenses being provided for in the budget of the expedition; (3) that a Fellow (to be nominated later) be appointed, his expenses likewise to be provided for in the budget of the expedition; (4) that the continuation of the survey of mounds in southern Iraq begun by Professor Jacobsen in 1953-54 be approved; (5) that Professor Goetze, on his next trip to Iraq, be requested to present to the Jesuit College at Baghdad a collection of books in the amount of approximately $100.00 from the Schools in memory of the late Father Roger O'Callaghan; (6) that the Schools favor the earliest publication of Professor Goetze's important manuscript of the "Laws of Eshnunna."

For the Editorial Committee Professor Albright reported that 2300 copies of each issue of the BULLETIN and 5000 copies of the *Biblical Archaeologist* are now being printed. No more *Supplementary Studies* will be published except where the manuscripts are prepared for off-set printing or where outside funds make printing possible. The next *Annual* (Vols. 29 and 30), has been prepared by Professor Kelso and may be expected in the near future. A very considerable saving will be effected by using the format of the *Journal of the American Oriental Society* in the future.

The President presented a report pertaining to the work of Professor Braidwood who is the Schools' representative on the Committee for Old World Archaeology.

It was voted to express appreciation to Dr. Glueck and the Jewish Institute of Religion for the hospitality provided for the Trustees' meeting. It was voted to express to President Kraeling the immense debt of gratitude felt toward him for his able leadership during the last five years.

WILLIAM L. REED, *Secretary pro tem*

ANNUAL MEETING OF THE CORPORATION

The annual meeting of the Corporation was held in Union Theological Seminary, New York City and was called to order by President Carl Kraeling at 5 p. m. on December 28, 1954. The President reported that there are now 89 institutional Corporation members and extended greetings to McGill University, Wake Forest College and Asbury Theological Seminary, which were elected to membership by the Trustees on December 27, 1954. The roll of member institutions represented was called by the President and recorded by Mrs. Walton. There were sixty-two institutions represented in person or by proxy.

It was voted to approve the minutes of the preceding meeting as published in BULLETIN, No. 133, and to receive the following reports as mimeographed and distributed prior to the meeting:

The President's Report
The Annual Financial Report of the Treasurer as audited (to June 30, 1954)
Report of the Director of the Baghdad School
Report of the Director of the Jerusalem School

Professor Henry Gehman reported on behalf of the Evaluation Committee concerning the activities of the Schools during the past year and their plans as projected by the Trustees. He expressed the confidence of his committee in the Officers and approval of the program as it is being put into operation. It was voted to receive his report with thanks.

President Kraeling reported on the questionnaire which was sent to Corporation members last spring regarding the possibility of producing teaching aids through the Schools. [See the preceding minutes of the Board of Trustees.]

Professor Dentan reported on behalf of the Nominating Committee; the following names were submitted and accepted:

rustees: Carl H. Kraeling, Oliver C. Reynolds, John A. Wilson. (Because of Dr. Whipple's resignation and the inadvisability of trying to find a successor at such short notice, the other position remains temporarily vacant.)
ssociate Trustees: Pres. Abraham Neuman, Dropsie College; Prof. Raymond A. Bowman, The University of Chicago.
valuation Committee (3 year term): Prof. Gehman.
ominating Committee, 1955: Prof. John Paterson, Drew University, Chairman; Dean Gurdon Oxtoby, San Francisco Theological Seminary; Prof. Joseph Free, Wheaton College.

resident Kraeling presented President Elect A. Henry Detweiler to the repre- atives of the Corporation.

WILLIAM L. REED, *Secretary pro tem*

(For lack of space the list of Members and Contributors, which usually follows the reports of the Christmas meetings, has been deferred to the April number.)

THE SECOND CAMPAIGN AT BETHEL

JAMES L. KELSO

On May 26, 1954, the American Schools of Oriental Research and the Pittsburgh-Xenia Theological Seminary began their ninth joint campaign with a summer's dig at Bethel. Excavation of the camp site of their former campaign in 1934 [1] was the first phase of the excavations. The *mukhtâr*, the land owners and the workmen were even friendlier than in the earlier dig and gave us the finest cooperation in every way.

Professor James L. Kelso of the Pittsburgh-Xenia Theological Seminary directed the expedition. He was assisted by Professor James Muilenburg of Union Seminary, director of the Jerusalem School, Professor Charles Fritsch of Princeton Theological Seminary, and Rev. David Sherwin, a graduate of Pittsburgh-Xenia Seminary. Mr. Emil Abu Dayeh was liaison man with the Bethel people and foreman of the excavations, with Mr. Maaz Abdo as assistant. The surveyor was Mr. Soubhi Muhtadi, the *formatore* Mr. Mahfouz Nassar and the photographer Mr. Hanna Safieh. All had worked with us at Jericho and were most skillful at their respective tasks. The average number of laborers was about fifty.

Mr. G. Lankester Harding, Père R. de Vaux and Father Sylvester Saller were most helpful consultants. The latter two visited the dig on various occasions and again studied the pottery when it was brought to the Jerusalem School. Dr. Carl Kraeling's assistance in planning the dig and inspecting it was greatly appreciated.

In this second campaign a few Early Bronze sherds were found just above bed rock, but the most numerous early sherds were Middle

[1] For the 1934 campaign see BULLETIN, Nos. 55 and 56.

Bronze II. They represented a good variety of forms. Fragments of floor levels were found at about a half meter difference in elevation. Only one wall was *in situ*, namely the foundation courses of a 107 cm. wall. Fallen brick near by apparently represented the main courses of the wall.

The Late Bronze phase was much thinner than the spectacular Late Bronze levels of the 1934 campaign. This level was represented by both

FIG. 1. Iron II piers erected upon an Iron I wall. Under the floor immediately in front of them an olive oil factory was found. Rear wall illustrates typical poor masonry of Iron I.

plain and painted sherds. No foreign ware of any kind was found although there were a few apparent imitations. There were fragments of floors but only one significant wall, which was 147 cm. wide, constructed of large stones reminiscent of those found in the Middle Bronze city wall of the 1934 campaign.[2] This new wall must have belonged to a still larger house than the excellent one found in the 1934 campaign (No. 56, Fig. 6). Many stones of this collapsed wall were left where they fell and Israelite Iron I house walls were built directly over them. The most important installation of this period was an olive oil plant with the vats for crushing and extracting the oil still in good condition. There was also a small stone bench upon which to set the olive oil jars while they were being filled. Much olive refuse was found just

[2] BULLETIN, No. 56, Fig. 2.

north of the vats. There is a possibility that these installations may also have been used before the final phase of Late Bronze.

Iron I was much the thickest level on the site, with three well marked phases of construction from the early part of the Iron I, i. e., the period

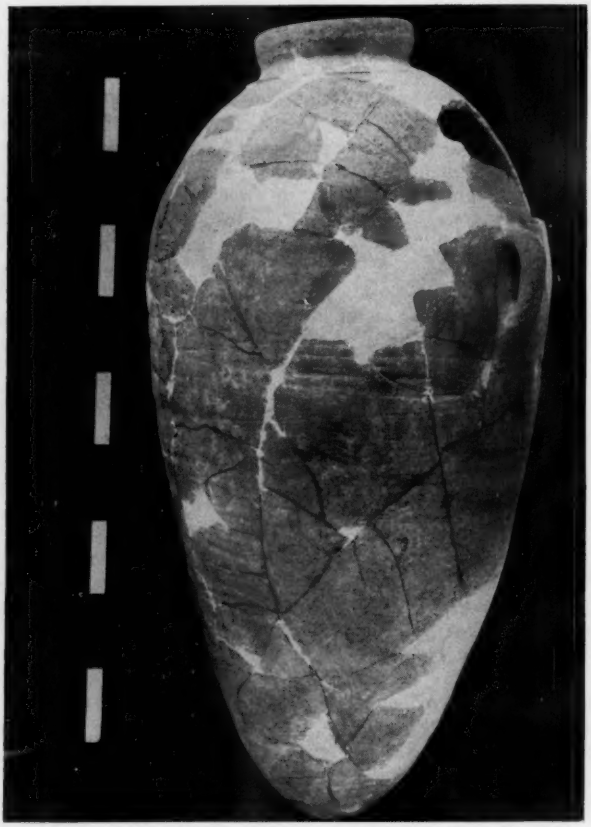


FIG. 2. A storage jar with collared rim from the period of the Judges (about 1100 B. C.). Four almost identical jars were found by the Danish excavators at Shiloh in 1929. See JPOS, X, p. 100 ff., and Hans Kjaer, *I det Hellige Land*, pp. 36-41.

of the Judges. This is all very similar to the 1934 findings. The following phase was not as pronounced as the earlier ones, and was rather quickly followed by the transition into Iron II. Philistine material (which was found in 1934) was missing. Only the lower phases of Iron II were represented by house walls, as the peasants had dug up this area to

get stones for their boundary fences. One interesting architectural feature of the Iron II phase (about the 9th century B. C.) was formed by heavy piers of well-shaped stones, quite unlike any of the crude Iron I piers found in the former excavations. Although the surface area worked over by the peasants yielded a large amount of Iron II pottery, there were not many sherds of the post-exilic, Hellenistic, Roman or Byzantine periods. Apparently there was little occupation here after the close of Iron II.

The second area excavated was just east of the mosque, an area at the foot of the hill upon which the Old Testament walled city lay. We conjectured that since the mosque was built on the ruins of a Byzantine church, this sacred area might also have been the site of Jeroboam's temple. We therefore dug this area in hope of such a possibility. The ground was strewn with Byzantine and Roman material. Indeed, there was so much of this pottery that we had time to dig deeply only in one small area. This test pit yielded Iron II, transitional pottery back to Iron I, and some Iron I. Then came Late Bronze and Early Bronze, similar to that of the J level at Tell Beit Mirsim. Middle Bronze was rare. No walls earlier than Iron I were found. More digging must be done at this mosque area, however, for all periods earlier than Roman times.

Four large cisterns were found in the SW corner of the mosque area. Only two vaulted cisterns were excavated. They contained a vast amount of broken pottery but unfortunately very few complete forms could be restored. The volume of Roman sherds, however, was very valuable as it confirmed our studies of Roman pottery at New Testament Jericho. Also it expands these studies. The Roman forms here at Bethel show a fine evolution from the delicate early ware of the late first century B. C. on through the thickening and decadent phases of Late Roman. Also the evolution of some fine typical Roman forms into good Byzantine ones is shown in their various stages. The Byzantine forms of Bethel are more closely related to those found at the north Wall of Jerusalem than to those we found at Nitla. The most important Byzantine phases of pottery are 3rd-4th and 6th-8th centuries.[3] Roman and Byzantine coins checked the pottery dating. Especially interesting are coins of the first Roman procurators, a Pontius Pilate coin of A. D. 29-30 and also some from the first revolt.

The cisterns referred to above were part of a large building complex of both Roman and Byzantine phases. There were courtyards with heavy flagstone paving; the pottery both above and below the paving was 6th-7th centuries.[4] Beneath this came earlier Roman-Byzantine pottery especially of the 3rd-4th centuries. Most of the Roman pottery was found in the cisterns, although some of it came from the building

[3] Bethel is an ideal site for the study of the Byzantine period. Much of the north gateway of the city and a long stretch of the main street reaching southward are still intact and heavy Byzantine remains extend as far south as the mosque.

[4] The latest pottery found in the mosque area seems to be 8th cent. A. D.

evels. Apparently the site was reoccupied not too long after it was burned by Vespasian.

We were asked to excavate a tomb some little distance east of the mosque area but did not have time. The large amount of excellent Iron I sherds found near this tomb led us to dig there to see whether there might possibly be a building on the site. None appeared, however, and this large amount of pottery must have been thrown out of nearby tombs when they were later reused in the Roman and Byzantine periods.

FIG. 3. Column bases of possible Persian (Achaemenian) date from Bethel.

The pottery shown us from the newly found tomb was Roman of the 1st century A. D.

The owners of the *maḍâfah* which we used in the 1934 campaign offered to let us dig in the great vaults under that building, but they were in such bad condition that it was not safe to dig there. The area of the *maḍâfah*, however, is well worth future study because of the nature of the large building originally on this site. On the eastern side of the hill along one of the little streets leading north from the mosque area were two badly weathered stones (bases or capitals), 95 cm. in

diameter. These stones were so badly weathered that their exact identification is difficult, but they demonstrate the presence of a large building in the vicinity.[5]

FURTHER EXPLORATIONS IN THE NEGEB

NELSON GLUECK

The archaeological exploration of the Negeb of Israel, begun in October, 1952,[1] was continued during July-September, 1953, under the auspices of the Hebrew Union College and the Louis M. Rabinowitz Foundation. Over a hundred ancient sites occupied in historical times by peoples of advanced sedentary civilizations were discovered. The existence of most of these sites had not been known previously. One of the most striking general results of the 1953 expedition was the discovery of so many large and small Nabataean settlements that it becomes necessary to revise our concept of the extent of the Nabataean kingdom in its heyday. The Nabataeans not only occupied well-known caravan and trade centers such as Kurnub, 'Abdah, Esbeiṭā, 'Aujā Ḥafīr, Khalaṣah and Raḥeibah, but also carried on intensive agricultural pursuits not only around these particular sites but in every cultivable *wâdī* and on every terraceable hillside throughout large areas of the Negeb.[2] The buildings, terraces, dams, cisterns and pottery so characteristic of their presence in the Wâdī el-'Arabah and beyond its east side were manifest to a surprising degree in large areas beyond the west side of the Wâdī el-'Arabah in the broken highlands of the Negeb. The power and authority of the Nabataean kingdom must thus have extended over large parts of the Negeb. In this light it is even more historically significant to note the connection of the name of 'Abdah (Eboda) with that of the Nabataean king Obodas, the likelihood that he was buried

[5] [Dr. Kelso has consulted several eminent authorities on the identification of these column bases (it is very hard to see how they can have been capitals, though the possibility must not be excluded at this stage). A distinguished specialist in Graeco-Roman architecture (who has also worked in Mesopotamia) has suggested the possibility that they are Achaemenian, but Achaemenian specialists are unwilling to commit themselves. It must be said provisionally that the slightly concave profile of the bases, the horizontal groove toward the bottom, and the vertical ridges and rills (particularly clear near the right edge of the circular stone closest to the camera) resemble the column bases of the time of Darius and Xerxes at Persepolis. On the other hand, the relative dimensions of the Bethel and Persepolis bases are entirely different. Needless to say, the existence of a monumental structure at Bethel in the Achaemenian period would be a fact of great historical significance, but we must await further study and more evidence before any such assertion can be made.—W. F. A.]

[1] BULLETIN 131, pp. 6-15. All of the site photographs were taken by the expedition's photographer, Mr. Benno Rothenberg. The abbreviations correspond to those of *Annual* XXV-XXVIII.

[2] BULLETIN 131, pp. 7, 9-13. Incidentally, the place-name in the title of BULLETIN 131, p. 7, Fig. 1, should read Qaṣr Umm el-Qeṣeir and not Qaṣr Wâdī es-Sîq.

there, and the probability that there was a large Nabataean temple there.[3]

The most striking single result of the 1953 expedition was the discovery in the central Negeb of a very important Middle Bronze I and earlier site or cluster of sites. It had never previously been known that there was permanent, advanced, agricultural civilization there in such early times. One swallow doesn't make a summer, and one archaeological site or even cluster of sites doesn't demonstrate the existence of a widespread civilization. Our guess and hope, however, is that in the continuation of our archaeological explorations of the Negeb additional MB I and earlier sites will be found. It would seem most unlikely that this particular discovery should remain an isolated phenomenon, a sort of an historical *Ding an sich*.

We arbitrarily call this site Khirbet Beqerah (66).[4] It is located near the top of the south edge of the chain of hills bounded on the west by the Wâdī Beqerah and on its upper east side by the Wâdī Haleiqîm. Nothing is visible on the surface except some rude, fallen building stones and remains of stone circles and foundations rarely more than one stone high (Fig. 1). In addition, there are ruins of several low burial platforms and burial cairns. Fairly numerous, much-worn and elusive but distinctive pottery fragments were found scattered about the site. Building stones and sherds belong to widely ranging periods of history. This site is approached from the west side of the road between Km. 23 and 24 and nearer Km. 24 on the way south from Tell Rekhmeh (Tell Yerûḥam). It is 4.5 km. WSW-SW of the modern settlement of Sedê Bōqer and 6.8 km. NNW-NW of 'Abdah (Ovdat), and 3.25 km. NW-NNW of 'Ain Mureifiq ('Ain Ovdat) in the Wâdī Murrah (Naḥal Môr). Its map coordinate is 125.75-028.85.

Below a rather steep hill, on the top and (mainly E-SE) slopes of which this site is located, passes the road leading south from Sedê Bōqer to 'Abdah (Ovdat) and beyond. A gradual slope leads down from the base of this hill beyond the (generally) east side of the road to the beginning of the precipitous descent into the deep canyon of the Wâdī Murrah (Naḥal Môr).

Near the south edge of the top of the hill on which Khirbet Beqerah is located, are the remains of two long, narrow, rectangular burial platforms built both of roughly-hewn and of naturally-shaped stones, originally several courses high. Each of these platforms supported two burial cairns, one at either end of the platform.[5] Remains of similar burial platforms and cairns were seen on hilltops and hillsides round about. Throughout the hilly areas in the Negeb we saw literally hundreds of such burial platforms and cairns or the burial cairns alone, frequently situated in prominent positions on the brows of hills. We examined

[3] BULLETIN 131, pp. 10-11.

[4] First visited by us on August 23, 1953. The number in parenthesis corresponds to the number we have given this site on our map.

[5] Cf. Woolley and Lawrence, *The Wilderness of Zin*, p. 44, Fig. 2.

many of them. Some were apparently more or less intact but most were partly or almost completely razed. The size and prominence of many of them leads one to believe that comparatively important people were buried in them. These included perhaps the chieftains or sub-chieftains, the greater and lesser sheikhs of tribal groups and members of their families. Slab-covered troughs built of separate stones in which the corpses were placed, could be seen in some of the burial monuments which we found opened.

FIG. 1. Foundation ruins of Khirbet Beqerah (66), looking east towards Wâdī Murrah.

Although pottery fragments of the Roman and Byzantine periods were found beside some of them, there was otherwise a complete absence of surface clues which could be used to help fix their date. Indeed even the presence of datable sherds on the surface furnishes no clear evidence of their date. We are, however, persuaded that most of the rectangular platforms with their burial cairns, as well as the separate cairns, belong to Roman-Byzantine times. Whole clusters of burial cairns are frequently found in closest proximity to settlements of these

periods, such as Qaṣr el-Juhāniyeh el-Janûbī (13).[6] Several of these burial monuments which have been opened up were Byzantine in origin.[7]

There is, to be sure, no question but that many cairns and stone burial circles belong to periods both earlier and later than Roman-Byzantine. Indeed, some of them in the Negeb have been assigned by Woolley and Lawrence to the early first or to the second millennium B. C. Inasmuch, however, as we are unable to check their pottery evidence,

FIG. 2. Rectangular burial mound of Byzantine (?) period on top of hill at south side of Khirbet Beqerah (66).

the knowledge of which was in its beginnings in their day, it is necessary to reserve judgment with regard to their dating.[8] It may be safely assumed, however, that the employment of burial monuments goes back to prehistoric times as well as to early historic periods, as evidenced in the latter instance by excavations at Teleilāt Ghassûl.[9] That does not

[6] Cf. Frank, *Aus der 'Araba* I, pp. 257-258, Pl. 50 B-52 A.
[7] Cf. Woolley and Lawrence, *op. cit.*, p. 43.
[8] Cf. Woolley and Lawrence, *op. cit.*, pp. 42, 44.
[9] Mallon, Koeppel, Neuville, *Teleilāt Ghassûl* I, pp. 11, 152-155; Neuville, *Biblica* xi, 1930, pp. 249-265; Stekelis, *Les Monuments mégalithiques de la Palestine*, pp. 38-80; Glueck, *Explorations in Eastern Palestine*, IV, pp. 385-389.

mean that the above-mentioned type of rectangular burial monuments with their cairns precedes the Roman period.

The rectangular burial platform near the top of the south side of the hill of Khirbet Beqerah is largely destroyed, but its outlines are still discernible, measuring approximately 21 by 6.40 m. (Fig. 2). The walls seem to have been about 50 cm. wide, with a rubble fill supporting a rude stone base on which the two burial cairns stood, one at either end. The cairns measured each about 2.80 m. in diameter, the one at the west end being almost completely destroyed and the one at the east end being somewhat less ruined. On the slope below it, about 200 m. to the SE, is the second of these rectangular platforms, this one measuring about 18.60 by 6.50 m., its walls made of fairly well-cut stone blocks, and with a partly-destroyed burial cairn at either end measuring about 2.80 m. in diameter. There is evidence also that there were other burial platforms and burial cairns on top of this hill, now too destroyed even to be measured in outline. The sherds found by them were so mixed in date when definable that they were not even of indirect value in helping date these burial monuments.

It soon became evident to us as we examined the rest of the slopes of this hill that not all the stone foundations on them could possibly belong to Roman-Byzantine burial monuments, but many represented much earlier foundations of houses and also of walls of corrals or courtyards in which probably sheep and goats had been kept. Most of the foundations seemed to be crudely circular or oval in form. One of them, for instance, near the top center of the east slope of the hill measured about 11 by 7 m. in rounded form (Fig. 3). There seems to have been a fireplace at its inner south side. One enclosure measured about 7.70 by 6.70 m., with a larger circular courtyard attached to it. There must have been a dozen such more or less circular foundations, with others, as we shall see, on adjacent hillsides.

Near the top of the hill at the south end was an almost rectangular ruin, oriented NNW by SSE, measuring about 14 by 6 m. At times, a more or less circular foundation, which seemed to have belonged originally to a rude stone dwelling was located within a larger stone enclosure, where sheep or goats may have been kept at night. In most of these ruined dwellings could be seen what appeared to be the remains of a fireplace. A typical dwelling consisted apparently of a small, more or less circular stone hut with a walled courtyard attached to it or sometimes around it. Some of the stone circles on the slopes of the hill may represent remains of very ancient tent sites. Whether or not the stone building remains belonged originally to corrals or house foundations or tent sites, or to all three types, is not clear; there is evidence that they belonged to possibly several permanent or semi-permanent settlements. While it may be impossible to ascribe any one foundation, with perhaps the exception of the rectangular burial platforms, to a definite period, the considerable numbers of sherds found particularly on the south and east slopes of the hill make it possible to distinguish various periods of occupation. Roman and Byzantine sherds were found,

especially near the bottom of the hill and on the lower parts of the slopes, although some were also found higher up. On the upper parts of the slopes, numerous and clearly datable sherds were found going back to much earlier periods. Middle Bronze I sherds predominated; others date to the first part of the Early Bronze Age, and still others farther back to the Late Chalcolithic (cf. Pottery Notes and Figs. 4 and 5)

FIG. 3. Foundation of circular structure at Khirbet Beqerah (66).

It had been known that there were Chalcolithic sites in the comparatively fertile parts of the Negeb between Beersheba and Gaza,[10] but it had not been suspected that a Chalcolithic-Early Bronze Age site, reoccupied intensively in the Middle Bronze I period, would be found in the rough, hilly country of the Negeb at a point some 42

[10] Cf. Glueck, *Annual* XXV-XXVIII, p. 74; BULLETIN 131, p. 6. Since this article was written, important Chalcolithic and Early Bronze Age sites have been discovered inside and on the outskirts of Beersheba; cf. IEJ, IV: 1, p. 54; IV: 2, pp. 125-126.

kilometers in a straight line SSW of Beersheba. It will be seen, too, that there are some immediately adjacent sites which are contemporary with BA Khirbet Beqerah. There must be others too, we believe, in other areas of the central and perhaps even southernmost Negeb of corresponding antiquity.[11]

The population pressures in this part of the world as early as the Chalcolithic, Early Bronze, and Middle Bronze I must have been heavy indeed to compel people to seek their livelihood in these broken and inhospitable parts of the Negeb, which are deeply furrowed by large and small *wâdîs*. It must be emphasized, however, that there are many thousands of acres of good cultivable soil in these *wâdîs* and on the slopes leading down to them. Among them in this particular area are the Wâdī Ḥaleiqîm (Naḥal Ḥalūqim), into which the Wâdī Beqerah and the Wâdī Beqqâr (Naḥal Bôqer) empty respectively from the south and the NE, and the Wâdī Murrah (Naḥal Môr) which is joined from the south among others by the confluence of the Wâdī Nefkh and the Wâdī 'Abdah (which becomes known as the Wâdī Ramliyeh in its lower course). Indeed the site of Khirbet Beqerah (66) is located near the dividing line of a watershed which separates two great *wâdī*-systems. The one *wâdī*-system leads ESE and ENE to NE through the Wâdī Murrah (Naḥal Môr) and ultimately the Wâdī Fuqrah (Wâdī Fiqreh, Naḥal Tsîn) into the Wâdī el-'Arabah and the other from NE to WNW to N to NW through the Wâdī Ḥaleiqîm (Naḥal Ḥalūqim) and Diqat el-'Amirîn and Wâdī Themeleh to the Wâdī Shellâleh (Naḥal Ha-besôr) and below Gaza to the Mediterranean.

A little less than three-quarters of a kilometer to the E-ENE of Khirbet Beqerah (66) is a similar site (80) on the upper slope of the same chain of hills, with a deep rill between the two sites. Its coordinate is 126.4-028.9. It too overlooks the descent to the E and SE toward the Wâdī Murrah (Naḥal Môr). On the top and slopes of this part of the hill are foundation ruins of rudely-shaped stone blocks belonging to circular structures of varying diameters. One of them is about 8.50 m. in diameter, with the remains of a smaller foundation on its ENE side. There were indications of foundation ruins of small rectangular structures too. The sherds found there belonged to the Chalcolithic-Early Bronze periods and particularly to MB I on the one hand and Roman-Byzantine on the other.

On approximately the same elevation, less than half a kilometer to the W-WNW on top of an isolated ridge, are some completely indistinguishable ruins, which may once have represented a rectangular platform. On top of them is a *rujm*, which may represent a burial cairn. Immediately below it on the east slope are the remains of assorted stone circles, some of them apparently foundations of small buildings, which afforded no clues regarding their dates. The map coordinate of this site (79) is 125.4-028.9. There were Roman sherds, including fragments of terra sigillata, some Byzantine sherds, clear

[11] Our 1954 archaeological explorations in the Negeb have definitely shown that this supposition was correct.

B I sherds and others which went back to earlier Chalcolithic-EB nes.

The lower sides of the chain of hills on which these sites were located e marked by remains of terraces, which undoubtedly stem from many riods. It seems quite possible to us that some of the terraces may st have been built in MB I, Early Bronze and perhaps even in the halcolithic. In all likelihood, the economy which sustained the inhabi- nts of sites 66, 80 and 79, was more or less the same through a long ccession of periods. There were animal husbandry and agriculture rticularly in the fertile stretches of the Wâdī Ḥaleiqîm, the Wâdī eqerah and the Wâdī Beqqâr. There are numerous remains of extensive rracing in these *wâdīs*. Important travel-routes passed through them, bringing trade and cultural connection with related sites elsewhere in Sinai, Palestine, and Transjordan.

A little over 3 km. to the SE of Khirbet Beqerah (66) is the excellent spring of 'Ain Mureifiq ('Ain Ovdat), located at the bottom of the deep canyon of the Wâdī Murrah. And somewhat over a kilometer and a half to the NE-NNE of it, also at the bottom of the canyon, is the smaller spring of 'Ain el-Murrah. 'Ain Mureifiq and 'Ain el-Murrah need not have been but may well be located in the same places today as they were four or more millennia ago. In all events, these or similar springs seem to have been the only ones available to the inhabitants of Khirbet Beqerah and the adjacent Chalcolithic-Bronze Age sites. It is not an uncommon phenomenon for inhabitants of modern Arab villages in various parts of the geographical area of Palestine and Transjordan to ride for several hours on their donkeys in order to obtain drinking water. And it is to such springs that they lead their flocks of sheep and goats for water. It is possible that in the Chalcolithic-EB and MB I periods there may have been some springs nearer to Khirbet Beqerah (66) than there are today, but at the present time 'Ain Mureifiq and 'Ain el-Murrah are the closest.

Pottery Notes on Figures 4 and 5

Ear-handle

4: 14 (Photographed sideways with top of handle to right); light brownish-buff ware, outer surfaces covered with light grayish-buff slip, well levigated, tiny and a few small grits, HM, WS, vertical ear-handle of ovate jug broken at point where wall of jug began to bulge outward. MB I; I know of no exact parallels, but I am certain on the basis of the above counts and of considerable acquaintance with MB I wares that this ear-handle can belong to no type of pottery other than the fine MB I ware found throughout all of Palestine and Transjordan; cf. *Annual* XXV-XXVIII, p. 501 for discussion of wares of this type. For more or less closely related MB I ledge-handles, cf. *Annual* XVIII-XIX, p. 481, Pl. 73: 2; p. 512, Pl. 110: 2; p. 449, Pl. 33: 1; p. 512, Pl. 110: 5.

Pierced Ear-Handle

4: 8 flattish, oval-sectioned pierced lug- or ear-handle, slightly splayed at upper and lower attachments, extending from edge of flaring, WM rim to shoulder of ovate, HM, WS jug; light creamy gray, slightly greenish tinged ware, well levigated, tiny and some small grits, horizontal band small diagonal incisions near top of shoulder. MB I. The band of incised decoration, the texture and form

occur frequently in examples of the strikingly uniform MB I pottery with its distinctive types. The pierced ear-handle, however, is usually wedge-shaped rather than flattish, oval-sectioned as in this instance, where it might be called a loop-handle; cf. BULLETIN 71, p. 28, Fig. 1: 2; p. 31, Fig. 2: 2; *Annual*, XII, p. 98, Pl.

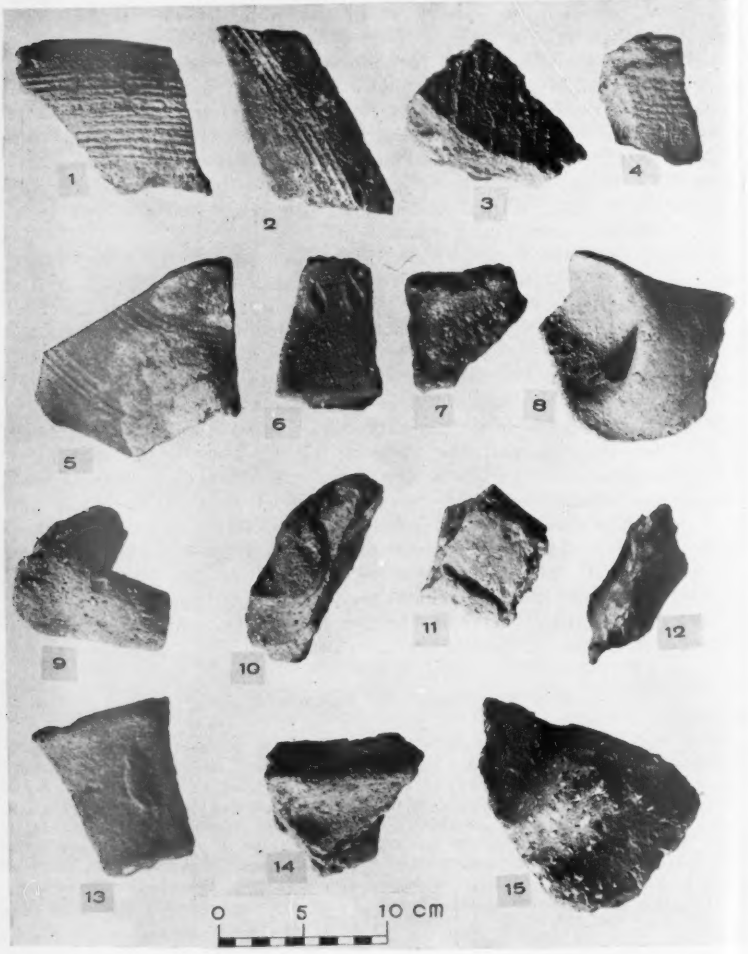


FIG. 4.

4: 37; p. 139, Pl. 45: 2; XIII, p. 120, Pl. 20: 17; XVIII-XIX, p. 256, Pl. 18: A; XXV-XXVIII, p. 446, Pl. 28: 7; p. 481, Pl. 73: 4; p. 512, Pl. 110: 3, 4.

4: 9 (photo sidewise, showing upper part of broken handle); light brownish-buff ware, tiny to medium grits. MB I; cf. above, Fig. 4: 8.

velope Ledge-Handle

4: 10 (photo sidewise, looking at top of handle with inner side to right); light ldish-brown to grayish-brown ware, numerous tiny grits, well levigated, well ked. MB I; cf. *Annal* XXV-XXVIII, p. 446, Pl. 28: 9; p. 450, Pl. 35: 1; pp. 500-1, Pl. 93: 12. 13 and p. 671, Pl. 153: 5. 4. The texture is coarser than the usual pe of envelope ledge-handles with core and outer surfaces of light brownish-gray light creamy-gray frequently covered with light creamy-gray wash; cf. p. 501 d Pl. 93: 1-8. 10; Pl. 17: 2. 5. 7; 73: 3. 5; 88: 6-8.

stigial Lug-Handle

4: 13 slightly flaring rim, light reddish-brown ware, hard baked, well levigated, y and some small grits, HM, WS, diminutive vestigial vertical lug-handle with o diagonal indentations on it. MB I; cf. *Annual* XVIII-XIX, p. 256, Pl. 5: 7 owing a similar vestigial lug-handle with remains of a small band of horizontal ce-combing above it; XIII, p. 63, Pl. 2: 7; XV, p. 123, Pl. 25: 18. 4 (which latter xample, like XVIII-XIX, p. 256, Pl. 1: 5, may be assigned to EB IV rather than o MB I).

Knob-Handle

4: 15 light grayish-brown, coarse ware, numerous small, medium and some large tone grits, HM, WS, small horizontal knob-handle pinched out of side of vessel, with slight depression in wall just above and below it. Chalcolithic (EB I); cf. TG II, p. 78, Pl. 91: 3. 4. 6; 86: 10; RB LV, 1948; p. 559, Fig. 5: 6. 10. 11; *Museum Journal* XXIV: 1, 1935, p. 8, Pl. II: 14; MT, Pl. 78: 23; *Annual* XXV-XXVIII, p. 432, Pl. 12: 8. For related conical knob- or teat-handle, cf. TG I, p. 93, Fig. 41: 3; p. 102, Fig. 52: 7; TG II, p. 78, Pl. 91: 1. 2; RB LIV, 1947, p. 409, Fig. 2: 10 and Pl. XV: 20; NMP, Pl. 19: 1; *Annual* XXV-XXVIII, p. 475, Pl. 65: 5; p. 436, Pl. 16: 3; p. 468, Pl. 62: 4; BIES XVIII: 1-2, 1954, Pl. XII: 7.

Raised, Indented Band

4: 11 (photo shows outer surface, with raised, indented band at bottom of sherd; broken, triangular projection of back part of left profile should be covered when looking at photo to obtain more correct impression of sherd); raised, indented, narrow, horizontal band on outer surface of "hole-mouth" jar with bulge on inner surface below inner edge of rounded rim; light creamy-buff ware, tiny to medium grits, well baked, HM, WS. Chalcolithic-EB I; cf. *Annual* XXV-XXVIII, p. 507, Pl. 100: 3. 7 (157: 6. 7); p. 442, Pl. 22: 22. 3; pp. 435. 436, Pl. 15: 8. 12; p. 439, Pl. 20: 1. 4. 5. 11. 13; p. 489, Pl. 81: 1-4. 6. 7; p. 581, Pl. 65: 2; Beth-shan, *Museum Journal* XXIV: 1, 1935, Pl. 1: 4. 7. 11-16. 20. 21. 23. 25 and p. 8; NMP, Pl. 19: 8. 10. 15 (20: 20. 18. 23); TG II, Pl. 87: 8. 13. 16. For discussion of raised, indented and scalloped bands, cf. *Annual* XVIII-XIX, pp. 506-507.

Face-Combing

4: 1 light reddish-buff ware, somewhat coarse, numerous tiny and small grits, slightly inverted bowl rim; commencing a short distance below the edge of the rim on the outer surface are roughly horizontal lines of somewhat coarse face-combing which seems to belong to almost contiguous bands of face-combing slightly separated from one another by a shallow groove. (EB IV)-MB I; cf. *Annual* XXV-XXVIII, p. 445, Pl. 28: 14; p. 451, Pl. 35: 9-11; p. 480, Pl. 71: 5; p. 481, Pl. 72: 1; 73: 14; p. 511, Pl. 109: 1. 2. 10; XVIII-XIX, p. 258, Pl. 17: 19. The type of face-combing of this sherd could certainly go back to EB IV, but the "band" type of face-combing and the general form of these sherds together with others in this context seem to underline their MB I date.

4: 2 (photo sidewise, with rim to right); slightly inverted bowl rim, reddish-brown ware, somewhat coarse with numerous tiny and small grits, HM, WS between horizontal bands of face-combing; part of one band visible just at bottom of sherd with the other band above it below rim. (EB IV)-MB I; cf. Pl. I: 10 for comments on color and texture; *Annual* XXV-XXVIII, p. 451; Pl. 35: 9. 10; p. 511, Pl. 109: 6. 9; XII, p. 99, Pl. 5: 12.

4: 4 light creamy-buff ware, well levigated, numerous tiny and small grits, flat-topped, flanged rim, horizontal indentation below outer edge, very slight indentation below inner edge, wide band of shallow lines of horizontal face-combing outer surface below rim. MB I; cf. *Annual* XXV-XXVIII, p. 432, Pl. 72: 4; p. 511, Pl. 109:3; p. 512, Pl. 72: 6; XIII, p. 64, Pl. 3: 4; XVIII-XIX, p. 260, Pl. 2: 1; pp. 261. 257, Pl. 14: 7. 8.

4: 5 reddish-buff ware, well levigated, tiny grits, HM, WS, outer surface light brownish-gray showing parts of wavy bands of face-combing. MB I; cf. *Annual* XXV-XXVIII, p. 451, Pl. 35: 11; p. 481, Pl. 73: 13; XII, p. 9, Fig. 2; p. 99, Pl. 3: 3-7. 13; p. 99, Pl. 5: 10-13; p. 101, Pl. 7: 20. 26; XIII, p. 103, Pl. 3: 3. 6.; p. 121, Pl. 21: 6. 7.

Face-combing

4: 3 light creamy-buff ware, numerous tiny and medium-sized grits, HM, somewhat irregular diagonal lines of crude face-combing on outer surface, over which are visible slight remains of light brown slip. Chalcolithic-EB I; cf. *Annual* XXV-XXVIII, p. 435, Pl. 15:9; p. 442, Pl. 21: 7; p. 429, Pl. 7: 8; p. 430, Pl. 8: 13; p. 444, Pl. 23: 14; p. 480, Pl. 71: 12; p. 487, Pl. 75: 1. 5.

Incised Ware

4: 7 dark brownish-gray ware, HM, WS, well baked, empty spaces in ware once filled with small particles of binding material, some tiny grits, diagonal rows very small oval indentations outer surface. The strong possibility of assigning this sherd to MB I must be considered in light of the MB I example shown in MT, Pl. 6: 27; this likelihood is heightened by the apparent relationship of the ware of this sherd to others from this site such as Fig. 4: 6. It is necessary, however, to consider also the possibility of assigning it to Chalcolithic-EB I; cf. TG II, p. 69, Pl. 86: 7. 9. 10. 14. 15. 19; p. 71, Pl. 88: 23-26; RB LIV, 1947, p. 407, Fig. 1: 11; Pl. XIII: 14; LV, 1948, p. 559, Fig. 5: 1; AAA 1936, Pl. XXXIII: 12; *Annual* XXV-XXVIII, p. 474, Pl. 108: 2; p. 444, Pl. 24: 3; Engberg and Shipton, *Notes on the Chalcolithic and Early Bronze Age Pottery of Megiddo*, p. 26, Fig. 8: z.

4: 6 dark grayish-buff to dark gravish-brown ware, numerous tiny, small and some medium grits, HM, WS, well baked; part of horizontal row of "tear-drop" indentations outer surface on top of shoulder of vessel. MB I: cf. *Annual* XXV-XXVIII, p. 429, Pl. 8: 2. 7; p. 437, Pl. 17: 8; p. 445, Pl. 28: 2. 10; p. 480, Pl. 71: 6; p. 502. Pl. 96: 15; p. 481, Pl. 72: 1; p. 512, Pl. 72: 6; 110: 4; XVIII-XIX, Pl. 2: 13; MT, Pl. 12: 6.

4: 8 Cf. under *Pierced Ear-Handle.*

Flint Borer

4: 12 Chalcolithic-EB I; cf. AAA 1937, Pl. VI B: 3; VII A: 1-6; VIII B: 19. 21; IX A: 11-14; RB LIV, 1947, Pl. XII: 2, lower row, second from left; TG I, Pl. 32: 13-17; MT, Pl. 79: 6.

Thin-Edged Rims

5: 5 (photo shows outer surface, profile and top of damaged edge of rim); irregular outer and inner surfaces, slight bulge inner surface below rim, brownish-buff ware, numerous tiny to medium grits, HM, traces of dark reddish-brown slip outer surface at lower left side. Chalcolithic-EB; cf. *Annual* XXV-XXVIII, p. 436, Pl. 15: 13; p. 434, Pl. 13: 1. 3. 4. 9; p. 438, Pl. 18: 1; p. 487, Pl. 80: 4. 6; p. 489, Pl. 81: 5. 8; p. 497, Pl. 91: 10; TG II, Pl. 82: 17. 18.

5: 6 (photo shows outer surface, profile and top of rim); reddish-buff outer surfaces, gray core, tiny to medium grits, HM, WS outer surface, traces of reddish-brown slip inner surface. Chalcolithic-EB; cf. above.

Plain Rims

5: 1 (photo shows outer surface, profile and top of rim); light brownish-buff ware, HM, numerous tiny to medium grits, traces of reddish-brown slip outer and

nner surfaces. EB; cf. *Annual* XXV-XXVIII, p. 427, Pl. 3: 4; p. 435, Pl. 121: 21; . 427, Pl. 4: 6; p. 452, Pl. 36: 10; p. 462, Pl. 52: 1. 3; p. 463, Pl. 56: 11; 52: 5; . 470, Pl. 63: 13; p. 487, Pl. 80: 6; p. 488, Pl. 80: 9.

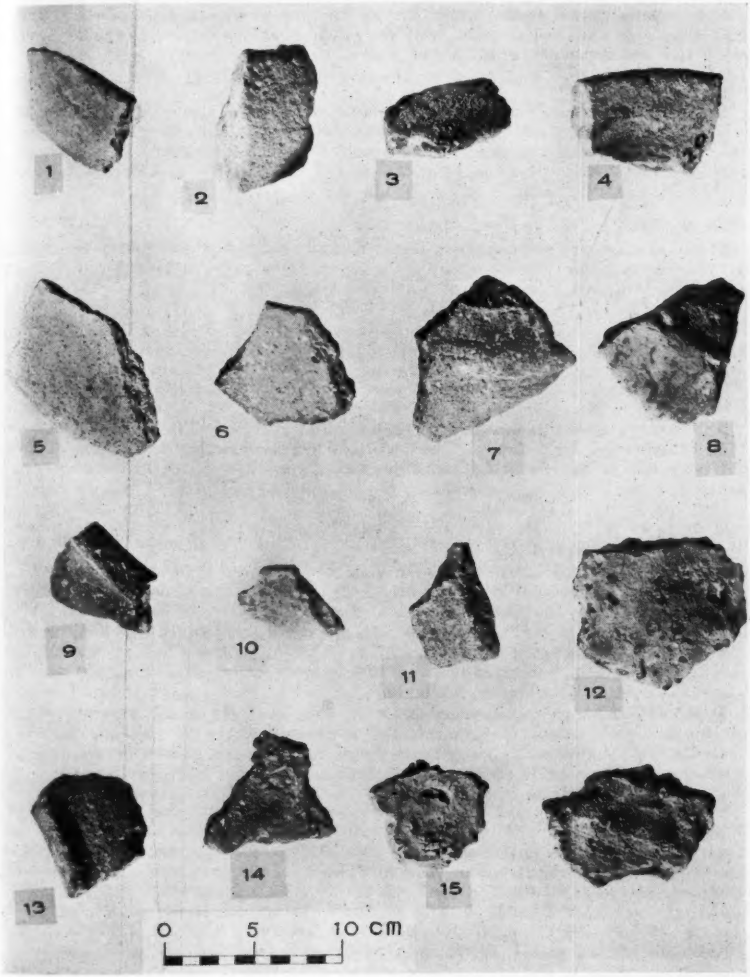


FIG. 5.

5: 2 (photo shows outer surface, profile and top of rim); reddish-buff ware, HM, well levigated, tiny grits, one comparatively large stone grit visible in top of rim, no present traces of slip. EB; cf. above.

5: 3 (photo upside down, showing outer surface with top and part of profile of rim); brownish-buff ware, well levigated with tiny and a few larger grits; HM; clear traces of reddish-brown slip outer surface extending to top of rim; no present traces of slip on inner surface. EB; cf. above.

5: 4 (photo shows profile, inner surface and top of rim); brownish-buff ware HM, tiny and some small grits, well levigated, clear traces heavy reddish-brown slip outer and inner surfaces, EB; cf. above.

Slightly Flaring Rim

5: 10 (photo shows inner surface, profile and top of rim); fine, thin-walled slightly flaring rim, light brownish-buff ware, well levigated, some tiny grits, clear traces reddish-brown slip inner surface and some faint remains of it on outer surface, HM. Chalcolithic-EB I; cf. *Annual* XXV-XXVIII, p. 435, Pl. 121: 19; p. 436, Pl. 15: 10; p. 469, Pl. 63: 2; p. 485, Pl. 74: 6. 11; p. 486, Pl. 74: 7.

Flanged Rims

5: 9 (photo shows outer surface, top of rim and part of profile); very thin, dark grayish-brown outer surfaces, tiny to some medium grits, broadened or flanged rim, WM, WS. MB I; cf. *Annual* XXV-XXVIII, p. 482, Pl. 72: 4; 73: 11; p. 512, Pl. 72: 6; p. 511, Pl. 109: 3; XIII, p. 64, Pl. 3: 4.

5: 13 (photo sidewise, showing outer surface and top of rim to left; break in surface at bottom looks like a hole); dark grayish brown ware; otherwise as above.

Bases

5: 7 (photo upside down, showing profile, outer surfaces, with bottom of base at top); thin-walled, light brownish-buff to dark brownish-buff at lower part of wall and base due to uneven firing, numerous tiny to medium grits, uneven outer and inner surfaces, HM, WS. Chalcolithic; cf. *Annual* XXV-XXVIII, p. 440, Pl. 20: 14; p. 489, Pl. 81: 12. 15-17; p. 493, Pl. 85: 15; p. 475, Pl. 111: 9. 11; for related ware and firing cf. p. 432, Pl. 12: 1. 11; p. 440, Pl. 19: 5, p. 441, Pl. 19: 13; p. 439, Pl. 19: 7; above, Fig. 5: 5.

5: 8 (photo upside down with base showing at top); light creamy-buff ware, with some small to medium grits, well levigated, clear traces of heavy reddish-brown continuously horizontally burnished slip on outer surface of wall, HM. EB I-II; cf. *Annual* XXV-XXVIII, p. 465, Pl. 51: 3; p. 469, Pl. 62: 8. 9; p. 476, Pl. 66: 10; p. 478, Pl. 69: 3; p. 486, Pl. 74: 1. 3. 4. 5; p. 494, Pl. 87: 9; p. 429, Pl. 7: 12; p. 437, Pl. 16: 8; p. 443, Pl. 24: 9. 10. 12. 13; p. 448, Pl. 31: 11; p. 464, Pl. 50:5; p. 509; Pl. 101: 5; 106: 7; 107: 3.

5: 11 (photo sideways, showing profile, outer wall and base to right); light creamy-buff ware, HM (?), well levigated, some tiny and a few small grits, clear traces of reddish-brown slip outer surfaces of wall and base, no present traces inner surface. EB; cf. above, and for general type of ware and fine vessel references to fine, slightly flaring rim of Fig. 5: 10.

Fragments of Coarse Ware

5: 15 (photo shows outer surface); crude, HM light creamy-buff ware, very thin brownish-buff surfaces, with clear remains of light reddish-brown paint outer surface, medium to large grits. Chalcolithic (-EB I); cf. TG I, Pl. 40: 4; II, p. 67, Pl. 84: 5; p. 68; *Annual* XXV-XXVIII, p. 435, Pl. 15: 1; p. 439, Pl. 19: 7; p. 472, Pl. 32: 1. 3. 9; p. 469, Pl. 62: 11; p. 470, Pl. 63: 13; p. 487, Pl. 79: 12; p. 493, Pl. 85: 15; p. 432, Pl. 12: 12; p. 484, Pl. 78: 3; above Fig. 4: 15.

5: 16 cf. above.

5: 12 light grayish-brown ware, WS outer surface, otherwise as above.

5: 14 (photo shows inner surface); fragment of thin-walled vessel, grayish-brown ware changing to reddish-brown inner surface; WS outer surface; otherwise as above.

HYKSOS FORTIFICATIONS AND THE BATTERING-RAM

YIGAEL YADIN

1. Many aspects of the Hyksos problem have not yet been settled, in spite of the fact that quite a number of studies have recently been dedicated to them.[1] That these problems merit consideration and reconsideration[2] is natural, since at no other period in the Bronze Age of Palestine did material culture reach such perfection as in MB II.[3] Moreover, the impact of the Hyksos occupation on Egypt was so great as to leave its impression on the political and military life of that country for centuries. For the military historian, too, this period is of the utmost importance, since it was during this period that chariotry—known and used before—reached such perfection that it must have profoundly influenced the whole realm of strategy and tactics. While all evidence proves that chariotry was used extensively in the MB period,[4] we still lack data concerning the organisation and tactics employed by military formations at that time.

On the other hand, when we turn to the subject of MB fortifications, excavations have revealed a completely new type, which is one of the most characteristic features of that period in the whole of the ancient Near East.[5] These fortifications with their sloping glacis—whether of *terre pisée* or battered stone—have raised many problems, and a great deal of discussion concerning their purpose has taken place.

One class of these fortifications, namely the "*fortified camps*" with great earthen ramparts, has been more or less universally attributed

[1] See most recently T. Säve-Söderbergh: "The Hyksos Rule in Egypt" (*Journal of Egyptian Archaeology*, XXXVII, 1951), pp. 53 ff. The main theme of this article is "that the Hyksos' rule [in Egypt] was only a change of political leaders, and not an invasion by a numerically important ethnic element with a superior war technique and a special civilization" (pp. 60-61). In this Säve-Söderbergh follows, in many respects, the arguments of Fr. W. von Bissing, in his "Das angebliche Weltreich der Hyksos" (*Archiv für Orientforschung*, XI, 1936-37), pp. 325-335. On the other hand cf. W. F. Albright: *The Archaeology of Palestine* (Pelican Books, A 199), 1949, p. 86, and the following notes.

[2] *Cf.* R. M. Engberg: *The Hyksos Reconsidered*, Chicago 1939; most of the valuable material concerning our subject summarized in this book (pp. 20 ff.; p. 45) is based on the earlier detailed studies of Albright; cf. *inter alia* his articles: "The Historical Background of Genesis XIV" (*Journal of the Society of Oriental Research*, X, 1926), pp. 244-245; "Palestine in the Earliest Historical Period" (*Journal of the Palestine Oriental Society*, XV, 1935), pp. 223-4.

[3] *Cf.* Albright, *op. cit.* (supra, n. 1), p. 87.

[4] In addition to the above articles cf. more recently, V. Gordon Childe: "The First Waggons and Carts from the Tigris to the Severn" (*Proceedings of the Prehistoric Society*, No. 8, 1951), pp. 177 ff.; M. S. F. Hood: "A Mycenaean Cavalryman," *Annual of the British School at Athens* (XLVIII, 1953), pp. 84-93.

[5] In addition to the studies mentioned in n. 2, cf. the description in A. G. Barrois: *Manuel d'Archéologie Biblique*, I (Paris 1939), pp. 127 ff., and pp. 206-207. For a most recent description, see S. Yeivin, in *Encyclopaedia Biblica* (Hebrew) II, 1954, Jerusalem, pp. 231-235.

to the need of protecting the *chariots*, which—owing to the relatively small size of ancient Canaanite cities—could not be kept inside fortified towns. As for the tactical purpose of the other type, namely, the *terre-pisée* and stone glacis, which protected the cities proper, no solution had been offered until very recently, except the logical deduction that the *terre-pisée* glacis were technically an adaptation from the one used in construction of their fortified camps. Recently, new suggestions to explain their tactical purpose as well have been offered by Miss K. M. Kenyon. Everyone is greatly indebted to Miss Kenyon for her ceaseless efforts to shed new light on the complicated problems of Jericho's walls. Not only has Miss Kenyon succeeded in solving many of the knotty problems,[6] but her recent excavations have brought to light the most sensational discovery of the pre-pottery Neolithic city-walls as well as the two *terre-pisée* glacis of the MB period, which she has shown to precede the famous battered-stone wall.[7]

The purpose of the present paper is to challenge one of Miss Kenyon's statements concerning the *tactical* aspect of the MB glacis—a problem on which her discoveries threw very little new light[8]—and to offer another solution. She writes, *inter alia*, as follows:[9] "This new type of constructing defences indicates a new type of warfare, for it is axiomatic in military science that new defensive methods are devised in reply to new methods of attack. The Middle Bronze Age is the period of the Hyksos, who are credited with the introduction of chariot warfare in the eastern Mediterranean area, and it seems very probable that the strengthening of the walls by these sloping defences is in fact *against chariotry, which would thereby be prevented from rushing up to the foot of the walls*" [The italics are mine. Y. Y.]. This theory has now also been adopted by S. Yeivin,[10] who adds that the glacis was intended to prevent the attackers—whose great advantage in mobility gained by the use of chariots enabled them to charge and retreat at great speed—from getting close to the city walls. While fully agreeing with Miss Kenyon's statement that "new defensive methods are devised in reply to new methods of attack," I shall try to show that the "new methods of attack" in this case were not the chariots, which can be decisive in open warfare but are of little use in attacking a walled city,[11] but the battering-ram, which was the most powerful weapon in siege-craft.

[6] K. M. Kenyon: "Some Notes on the History of Jericho in the Second Millennium B. C." (*PEQ*, 1951), pp. 101 ff.

[7] "Excavations at Jericho, 1952" (*PEQ*, 1952), p. 62 ff. and "Excavations at Jericho, 1953" (*PEQ*, 1953), pp. 81 ff.; cf. also A. Tushingham: "The Joint Excavations at Tell es-Sulṭân (Jericho)" (*BASOR*, 127, Oct., 1952), pp. 5-16.

[8] Except for the important discovery that the famous stone glacis is in fact part of the city wall and not just a revetment of a fosse: *PEQ*, 1953, pp. 90-91.

[9] *PEQ*, 1952, p. 71.

[10] P. 46, 1954, ("מערכות" סד"-פה) "הבצורים בישראל בימי קדם"

[11] As shown also by G. M. FitzGerald in his lecture: *Hyksos Fortifications and Chariot Warfare*, delivered in the 23rd International Congress of Orientalists, Cambridge, 1954. I thank Mr. FitzGerald for allowing me to refer to this lecture.

. Before proceeding, however, I shall summarize the available data concerning MB fortifications, since it is essential for our purpose to classify the different types and techniques of these fortifications, as well as to ascertain their chronology and diffusion.

Types:

Broadly speaking, one should distinguish between two main types, which although they were built by the same ethnic group and employed similar techniques of construction, were completely different in shape and purpose.

1. The huge " fortified camps " or enclosures.[12]

2. The fortification of the already existing cities, built on their *tells*.

The fortified camps. The best known examples of this type are Carchemish,[13] Qaṭna [14] (el-Mishrifeh), and Tell Sefînet Nûḥ [15] in Syria; Ḥazor (Tell el-Qedaḥ),[16] Ascalon [17] in Palestine, and Tell el-Yahûdiyeh [18] and Heliopolis [19] in lower Egypt.[20] The most characteristic features of these enclosures, are their more or less rectangular shape,[21] their great size [22] and the huge ramparts surrounding them and built of beaten earth (*terre pisée*) as well as of other materials to be mentioned later. As previously stated, it is fairly universally accepted that these camps were intended to protect the hosts of chariots, which it was of course impossible to accommodate in the relatively small walled towns. They will not be dealt with in the present discussion, with the exception of

[12] Against the attempts to identify this type of enclosure with the Biblical *Ḥāṣôr, ḥāṣēr, ḥaṣērîm* see Harry M. Orlinsky, "*Ḥāṣr* in the O.T." (*JAOS*, LIX, 1939), pp. 22 ff. and in particular p. 27, n. 21; for further bibliography cf. also J. Garstang: *Joshua, Judges*, London, 1931, p. 184.

[13] C. L. Woolley: *Carchemish*, II (1921), p. 43.

[14] Du Mesnil du Buisson: *Le site archéologique de Mishrifé-Qaṭna* (Paris, 1935), pp. 40-42 and Pls. I-II, or Pl. LI in *Syria*, VIII, 1926, pp. 289 ff.

[15] Albright, *op. cit.* (supra, n. 2), *JSOR*, X, 1926; Engberg, *op. cit.* (supra, n. 2), p. 22, n. 20, and there for further bibliography.

[16] Garstang, *op. cit.* (supra, n. 12), pp. 183 ff.; p. 381 ff.; *idem*: "The Site of Ḥazor" (*AAA*, XIV, 1927), pp. 35-42.

[17] Garstang, *op. cit.* (supra n. 12), Plan No. 1 on p. 358.

[18] W. M. Flinders Petrie: *Hyksos and Israelite Cities* (London, 1906), pp. 3-10; Pl. IV.

[19] W. M. Flinders Petrie & E. Mackay: *Heliopolis, Kafr Ammar and Shurafa* (London, 1915), p. 3 ff. and Pls. I-III.

[20] Against Ricke's efforts (*ZÄS*, 71. 1935, p. 107 ff.) to prove that these embankments were really retaining walls for native Egyptian terrace-platforms, see W. F. Albright, *The Excavations of Tell Beit Mirsim*, Vol. II (*AASOR*, Vol. XVII [1936-37]), p. 28, n. 2. Säve-Söderbergh argues *inter alia* (*op. cit.*, supra n. 1; p. 60, n. 5, following Ricke *op. cit.*, and H. Otto in " Die Keramik der Mittleren Bronzezeit " (*ZDPV*, LXI, 1938), p. 270 ff.), that the *outer slopes* and *inner vertical* walls of these constructions speak against the military character of these enclosures. This argument seems to the writer not very convincing in view of the fact that the glacis and slopes are *always* on the outer side of the fortifications, as their tactical function demands (see below).

[21] Cf. Albright, *op. cit.* (supra n. 2), *JSOR* X, p. 252.

[22] Ḥazor, for example: 1000 × 600 yards.

the technique employed in their construction, which is very similar to that used in the glacis of the towns proper.

The sloping glacis of fortified towns. In shape, technique and chronology, we should distinguish two main types: (a) The *terre-pisée* type (represented by a number of variations of constructional technique), which consists of a sloping glacis covering—sometimes in great thickness—the face of the *slopes of the tell below the walls*, and sometimes, continues upwards and serves as platform for a much thinner brick wall. Thus in this type the *whole tell* is turned into a well-fortified slope— the walls standing high on top of it. This type (a) which has been discovered in all excavated MB sites[23] is best represented in Alalakh (Tell-'Aṭshâneh[24] in Syria, and Tell Jerîshah,[25] Lachish[26] (Tell ed-Duweir), Tell Beit Mirsim,[27] Jericho,[28] Tell el-'Ajjul,[29] Tell-Fâr'ah[30] and other sites in Palestine.[31] In some cases additional protection was added by a moat or a fosse at the foot of the glacis.[32] (b) *Battered stone-walls*: In this type a substructure of massive polygonal masonry was erected, with the outer face sloping (often with a bulge) while the inner face was vertical. On the flat top of this sloping substructure, there was a vertical superstructure of mud brick. In that period the earlier (see below) *terre-pisée* glacis disappear, but the same purpose of achieving a thick lower part of the wall is obtained by a stone slope of lesser height, but of more thickness and strength. This type is best represented in Balâṭah (Shechem), Tell Beit Mirsim[33] and Jericho,[34] as well as in several places in Anatolia.[35]

The technique: The intimate connection between the people of the "fortified camps" and those of the "beaten-earth fortified towns," is well attested, *inter alia*, by the similarity of technique employed in both types. In fact this offers the best explanation for the adoption, although temporary, by the latter, of a method best suited for the purpose of the former.

[23] For these sites see map in Säve-Söderbergh, *op. cit.* (supra n. 1) Fig. 2, p. 61.
[24] L. Woolley: *A Forgotten Kingdom* (Pelican books, A 261, London, 1953), pp. 69, 87.
[25] E. L. Sukenik in *QDAP*, X, p. 198. To be published in full by N. Avigad of the Hebrew University and the writer.
[26] J. L. Starkey: "Excavations at Tell el-Duweir" (*PEFQS*, 1934), p. 167 and Pl. IV, Fig. 2. I take this opportunity to thank Miss O. Tufnell for the time she spent in discussing the various aspects of the above glacis with me.
[27] Albright, *op. cit.* (supra n. 20), p. 27 ff.
[28] Kenyon, *op. cit.* (supra n. 7), *PEQ*, 1952, p. 70 and Pl. XVI; *PEQ*, 1953, p. 90 and map (fig. 1 on p. 82).
[29] W. M. Flinders Petrie: *Ancient Gaza II* (London, 1932), Pls. XLV; LI.
[30] W. M. Flinders Petrie: *Beth Pelet I* (London, 1930), p. 16 and Pl. XIII.
[31] Cf. Engberg, *op. cit.* (supra n. 2), p. 21, n. 16.
[32] On the "Fosse" of Jericho see supra n. 8.
[33] See Albright, *op. cit.* (supra n. 1), pp. 88-89.
[34] J. Garstang: "The Walls of Jericho" (*PEFQS*, 1931), p. 186 and Fig. 1 on p. 188.
[35] M. I. Maksimova: "Hittites in the Black Sea Region" (*JNES*, X, 1951), p. 77.

lthough these ramparts and glacis (type " a ") are usually described a eing built of beaten earth (which was no doubt the original method e loyed in the construction of the " fortified camps ") their construc-ti and material are in fact much more elaborate and complicated. T most elaborate and common system was the " sandwich " method, w re layers of sand, *qurqâr*, mud or bricks, were built alternately o top of each other. The best example of this type in Palestine was d covered by the late Prof. E. L. Sukenik at Tell Jerîshah near Tell-A v.[25] In fact, the similarity or even identity between the technique e loyed there and the one used at Carchemish, for example, enables us to use the following description by Woolley of the method used in Ca chemish, to describe the one of Tell Jerîshah: [36] . . . " So they cast up a mound not haphazard but on a system; they took the material which came to hand, but they used it scientifically. Between layers of shingly gravel or of soft limestone chippings were spread layers of brick clay, and sometimes heaped lines of such seem to have divided the strata of less solid stuff into compartments; in this way the mound was not so much thrown up as built up. The face of the slope . . . was revetted with brick-clay to protect it from disintegration by the weather." More or less similar techniques were employed in Tell-el-Yahūdiyeh, Heliopolis, and Qaṭna.[37]

The other variation consists of using either a well-beaten thick layer of *qurqâr* [38] or clay, covered with stucco or plaster, or a " sandwich method " of alternate layers of different materials such as sand or *qurqâr*, covered with a plastered surface.[39] In short, even this earlier (see below) and less developed type of glacis, is a well-planned construction, which—with its various materials carefully laid—formed a very solid slope. On the other hand type " b," the battered and sloping stone-walls, was of much stronger construction, thanks to its great thickness and the large size of the individual stones.

Chronology and diffusion: Fortunately, the archaeological material enables us to fix the dates of the various types with ample confidence. It is definitely certain, as proved by excavations at Tell Beit Mirsim,[40] Jericho [41] and Lachish,[42] that the *terre-pisée* type precedes the battered stone-wall or glacis. According to Albright, the dates of these two types should be as follows: The *terre-pisée* somewhere at the beginning of the 17th or perhaps even at the end of the 18th century (stratum E_1 in Tell Beit Mirsim); the stone glacis somewhere in the late 17th or the early 16th centuries B. C.[43] (strata E2-D). In other words, these

[36] L. Woolley, *op. cit.* (supra n. 13), p. 47. In Tell Jerîshah the brick casing was further covered by a layer of *qurqâr*.
[37] See notes 18, 19 (Pls. II-III) and 14. Cf. also Albright, *op. cit.* (supra n. 2), *JBOR*, X.
[38] Starkey, *op. cit.* (supra n. 26); Albright, *op. cit.* (supra n. 20), p. 27.
[39] Kenyon, *op. cit.* (supra n. 7), *PEQ*, 1952, p. 70.
[40] Albright, *op. cit.* (supra n. 2), p. 28.
[41] See n. 39.
[42] Starkey, *op. cit.* (supra n. 26), p. 168.
[43] Albright, *op. cit.* (supra n. 2), p. 28.

facts show quite clearly that the stone glacis must have been considered by the MB people as a necessary improvement on the older *terre-pisée* glacis, and the tactical explanation must answer *both types* at the same time. Since both types of glacis were undoubtedly first employed in Syria [44] or even Anatolia, it seems that they had to answer a challenge which must have been first developed in these regions.

In summing up this section of the discussion, one comes to the following conclusions:

1) The fortifications of the *terre-pisée* cities were intended to add further protection to the already existing fortifications by thickening their lower parts and exposed slopes.
2) The technique of these fortifications was not an end in itself but rather an improvised adaptation from the one used successfully in the "fortified camps."
3) This technique must have been proved inadequate in the process of developing the weapon against which the glacis were built, and lower, but thicker, slopes built of stone replaced them.
4) In both cases the enemy was not hindered from approaching the vicinity of the walls, since these slopes added only a few meters to the thickness of the walls or the natural slopes of the mounds beneath them. The last conclusion, in addition to the arguments mentioned above, of course eliminates the theories explaining the glacis as a protection against the onslaught of chariotry. Moreover, as the characteristic features of the chariots were essentially different from those of modern tanks, with which they are sometimes equated,[45] they could not have been used for any purpose connected with direct attack on a fortified city.

3. *The tactical significance of the glacis.*

In order to ascertain the tactical significance of the glacis, we must first analyze the main methods of attacking a fortified city. If we discard the most popular method, i. e. a blockade or siege, which is irrelevant to our problem, there remain three main methods: [46]

a. Penetration into the city *above* the walls.
b. Penetration into the city *through* the walls.
c. Penetration into the city *under* the walls.

[44] Albright, *op. cit.* (supra n. 1), p. 89.

[45] Hood (*op. cit.*, supra n. 4, p. 91, n. 60) remarks: "The position of the chariot in early warfare is aptly compared by Childe with that of the tank in modern (*New Light on the Most Ancient East* [1952], 151)." Cf. also Childe, *op. cit.* (supra n. 4), p. 188. Now the two most important advantages of the tank (in addition to its fire power) i. e. a heavy all-round armour and the ability to cross all kinds of rough country, are precisely the main two disadvantages of the chariot. Incidentally, the inability of the war-chariot to manoeuvre freely in hilly and rough terrains, is perhaps the main reason for the introduction and development of cavalry. Once the first shock of the chariot has been overcome, either by seeking more and more protection in the fortified cities, or by concentrating forces in forests, hills, and thickets, the aggressor had to resort more and more to cavalry. For other suggestions and explanations see Hood, *op. cit.*, p. 91.

[46] H. Waschow: *4000 Jahre Kampf um die Mauer* (Bottrop, 1938), p. 23.

Now, whichever method is used, it is important to cover by "fire" the "dead areas" in the immediate vicinity of the walls. This need is of course, exceedingly vital in case the second method is employed, where the enemy has to operate for a relatively long time near the lower part of the walls. On the other hand, in method "a" the crucial tactical moment comes when the enemy reaches the top of the wall and the main means of defence lies not so much in the thickness but rather in the *height* of the walls. In method "c" the enemy is already covered and protected from above, except at the very beginning of his work for which he could easily choose the cover of night.[47] While the glacis also plays a secondary rôle in eliminating the danger of "dead areas," this was essentially the task of the flanking towers and system of machicolation, as is amply shown in many ancient representations.

Moreover, the MB sloping glacis had not, it seems, been built mainly as protection against methods "a" or "c," since in the former it rather facilitated the task of the climbers[48] (especially in glacis type "b") and there was no necessity of changing the material of construction from *terre pisée* to stone; while against the latter it was unnecessary to build a glacis of considerable height, as the *thickness* of the base itself would suffice.

We must therefore conclude that the glacis of both types were built in order to protect the city walls against the enemy's attempts to break *through* them, as they eliminated at the same time the "dead area" so essential to this method of attack and—and this is the most important point—*thickened* the most vulnerable parts of the fortifications, i. e. the lower parts.

That it was the protection of those vulnerable parts and the exposed slopes of the mound that was in the minds of the military engineers of MB is also clear from the fact that in these fortifications the city walls proper, above the glacis, played a relatively *secondary* rôle, as is evident from their thinness and flimsy construction.[49]

4. These conclusions should have led us to the *prima facie* assumption that the new weapon which endangered the old method of fortification with vertical walls and against which a new kind of protection had to be invented, was some sort of *battering-ram*, were it not for

[47] On the tunnel discovered in the glacis of Lachish, see Starkey, *op. cit.* (supra n. 26), p. 169. On the other hand, cf. S. Yeivin, זמנה של המנהרה בחלקלקת לכיש, (ארץ ישראל, מחקרים בידיעת הארץ ועתיקותיה, ספר א) p. 29 ff., 1950-51, Jerusalem, Yeivin's suggestion that the tunnel should be attributed to the Assyrian siege is of course a possibility, although his argument—mainly *ex silentio*—that tunnelling was not practised before the Assyrian period, is open to discussion. The high technical skill attested by tunnels for reaching an underground source of water in time of siege in various towns of Palestine in the LB period should warn us against accepting such a far-reaching statement without hesitation.

[48] Cf. Waschow, *op. cit.* (supra n. 46). The more vertical the wall, the easier it was for the defender to push ladders backwards.

[49] Cf. notes 33-35.

the fact that up to very recent times the invention of these engines of war was attributed to the Assyrians in the 9th century B. C.[50]

Fortunately, the documents from Mari and Boghazköy supply us now with the necessary information concerning the employment of a highly developed and powerful battering-ram as early as the 18th century B. C.[51] This battering-ram (*iš iašību/(w)ašību*) was employed simultaneously with the siege-tower (*išdîmtu*), the archers of which provided the necessary covering "fire" for the crews manning the battering-rams.

In one letter from Mari[52] Išme-Dagan reports that he conquered a certain fortified city in seven days with the help of these engines. From another letter,[53] written by Šamši-Adad, we learn that these engines were sometimes transported by means of boats and wagons.[54] The effectiveness of these siege engines, must have been enormous, as is attested by another letter[55] according to which a certain fortified city was captured in a single day.

Even more important details concerning the battering-ram and its origin are to be found in the famous document from Boghazköy describing the siege of Urshu,[56] which must have taken place about a century or two after the incidents mentioned in the Mari letters.[57] This document—with a detailed description of the siege operation and of the important rôle assigned to the battering-ram, as well as the fact that it mentions specifically the fact that although chariots did participate in the battle they were only employed for cutting the communications—merits a quotation in extenso:[58] "They broke the battering-ram. The king waxed wroth and his face was grim: They constantly bring me evil tidings; . . . Make a battering-ram in the Hurrian manner! and let it be brought into place. Make a "mountain" and let it (also) be set in its place. Hew a great battering-ram from the mountains of Hazzu and let it be brought into place. Begin to heap up earth" . . . [and then later]: "The king was angered and said: Watch the roads. Observe who enters the city and who leaves the city. No one is to go out from the city to the enemy . . . They answered: We watch. Eighty chariots and eight armies surround the city."

[50] Cf. for example E. Unger: *Belagerungsmaschinen*, in *Reallexikon der Assyriologie*, I, pp. 471-472; K. Galling, *Biblisches Reallexikon* (Tübingen, 1934), p. 92.

[51] Collected and discussed by J.-R. Kupper: "Notes Lexicographiques" (*Revue d'Assyriologie*, XLV, 1951), pp. 125-128. I take this opportunity to thank I. J. Gelb and R. D. Barnett for their kind assistance in some matters concerning the cuneiform texts.

[52] G. Dossin: *Archives Royales de Mari*, I (Paris, 1950), letter No. 131.

[53] Ch.-F. Jean: *Archives Royales de Mari*, II (Paris, 1950), letter No. 7.

[54] W. von Soden, in *Orientalia*, NS XXII, p. 195.

[55] *ARM*, I, No. 138. Cf. Kupper, *op. cit.* (supra n. 51), p. 125.

[56] H. G. Güterbock: "Die historische Tradition und ihre literarische Gestaltung bei Babyloniern und Hethitern bis 1200" (*Zeitschrift für Assyriologie*, NF, 1938), pp. 116 ff., 126-127.

[57] Cf. Sidney Smith in *JRAS*, 1942, p. 64.

[58] The following English translation is from O. R. Gurney: *The Hittites* (Pelican Book A 259, London, 1952), pp. 178-179.

he "mountain" and the heaping of the earth were essential—as in later periods—in order to push the battering-ram over the fosse or the lower part of the wall, and up to the thin walls above the glacis.[59] Naturally, from the fact that the battering-ram mentioned in the Mari documents, was already a well-developed weapon, we conclude that its invention, at least in a more primitive form, took place some time earlier. In fact Kupper points out that the above term for "battering ram," is already mentioned in a lexicographical text from the pre-Hammurabi era.[60] Similarly, I should like to call attention to the famous siege *pictures* in three of the Beni-Hasan tombs,[61] the significance of which to the very early history of the battering-ram and the glacis, has been—as far as I know—overlooked, owing to the previously mentioned assumption that the battering-ram made its first appearance in the 9th century B. C.[62]

In these drawings we have, in my opinion, the earliest documents depicting the battering-ram and the sloping glacis *together*, or in fact, at all.[63] The sloping glacis is very clearly depicted in all three figures. As for the primitive construction, sheltering two or three soldiers who are pushing a very long shaft against the walls (Fig. 3) or the battlements (Figs. 1-2) with their hands—they should be interpreted in my opinion, as a primitive type of *battering-ram*. This type is exactly like the one—indeed with its covering construction even more developed—which, according to Athenaeus, served as the model for the invention of the battering-ram by the Phoenicians in the siege of Gades.[64]

[59] This method might explain the fact that in Jericho "above the silting was a deposit of chert chippings, obviously representing *an intentional* levelling up of the partially filled fosse, such as one would expect to be associated with a *general tidying* up when the place was reconditioned. The top of this filling was brought to a flat surface flush with the base of the brick parapet which rested on the stone revetment." (Kenyon, *op. cit.*, supra n. 6, p. 118 and fig. 4). In view of the fact that the stone glacis must have still been in use—or re-used—in later periods (Kenyon, *op. cit.*, p. 119) one can see no reason for *deliberate* filling of the "fosse" by the defenders in "a general tidying up," thus depriving *themselves* of a very effective and important part of their defences. On the other hand this would have been, it seems, precisely the thing an enemy, using battering-rams, would have done. I take this opportunity to thank Miss Kenyon for the time she spent in discussing with me the various aspects of MB defences in Jericho.

[60] Kupper, *op. cit.* (supra n. 51), p. 126.

[61] Percy E. Newbury: *Beni Hasan* (London, 1893), Tomb No. 2 (part I, Pl. XIV), Main chamber, East wall (North side); Tomb No. 15 (Part II, Pl. V) Main chamber, East Wall; Tomb No. 17 (Part II, Pl. XV) Main chamber, East Wall.

[62] Note the hesitation of W. Wolf, *Die Bewaffnung des altägyptischen Heeres* (Leipzig, 1926), p. 31; cf. also Galling, *op. cit.* (supra n. 50), p. 92.

[63] For an earlier depiction of breaching operation with the help of very primitive tools, see F. Petrie, *Deshasheh* (London, 1898), Pl. IV. In fact the depicted operation might as well represent the breaching of a gate, to judge from the double bastion flanking the breach. For an earlier literary description of what sounds like a sloping glacis, see C. J. Gadd: *Ur Excavations; Texts, Vol. I, Royal Inscriptions* (1928), p. 81.

[64] Quoted by E. Schramm in Kromayer-Veith: *Heerwesen und Kriegführung der Griechen und Römer* (München, 1928), p. 224. Cf. also Waschow, *op. cit.* (supra n. 46), p. 62.

5. The above discussion suggests that it is at the very beginning of the 2nd millenium B. C. that one should look for the origin of most of the military weapons and tactics which one way or another, are employed even to this day. Chariotry, with its immense superiority in mobility and fire power, dominated the field in open warfare, and the battering-ram and other siege engines menaced the people who, running away from the chariots, sought protection in walled cities.

The glacis, and other developed elements of fortification, invented as a counter-measure against battering-rams—eventually became a formidable obstacle to attackers, who had to resort more and more to blockade and cunning. At the beginning of the first millennium B. C. we see a revival of a much developed battering-ram and simultaneously renewed employment of a strong glacis, which becomes one of the most typical elements in fortification.[65]

Once a certain weapon or counter-device had come to be used universally, it was the man *behind* the weapon or wall who decided the course of history—then as now.

AN ARCHAIC SOUTH-ARABIAN INSCRIPTION IN VERTICAL COLUMNS

A. Jamme, W. F.

On April 21, 1951, I found an interesting rock inscription located on the upper eastern corner of a southward-facing, almost vertical wall of an isolated mass of rock belonging to Jebel 'Awrâd (Wâdī Beiḥân).[1]

Description. The text quoted as Jamme 863, is formed of five vertical lines running from right to left and to be read from top to bottom; the maximal measurements of the lines are, respectively, 15.5 × 5; 19.5 × 5; 12.5 × 5; 14 × 5.5 and 18.5 × 4.5 cms. The inscription, at the upper left corner of which a human being is roughly scratched, is not an ordinary graffito, but a true inscription lightly engraved, not merely scratched. Its decipherment, as far as lines 3-5 are concerned, was really difficult, not because the locus is a little damaged, but because there is practically no difference in color between the characters and the rock wall. I therefore spent more than one hour making sure that I had the exact lettering of the text. Neither my black-and-white photographs nor my Kodachrome slides can be satisfactorily reproduced; however, they have been of great help for the drawing, which I have made as carefully as possible.

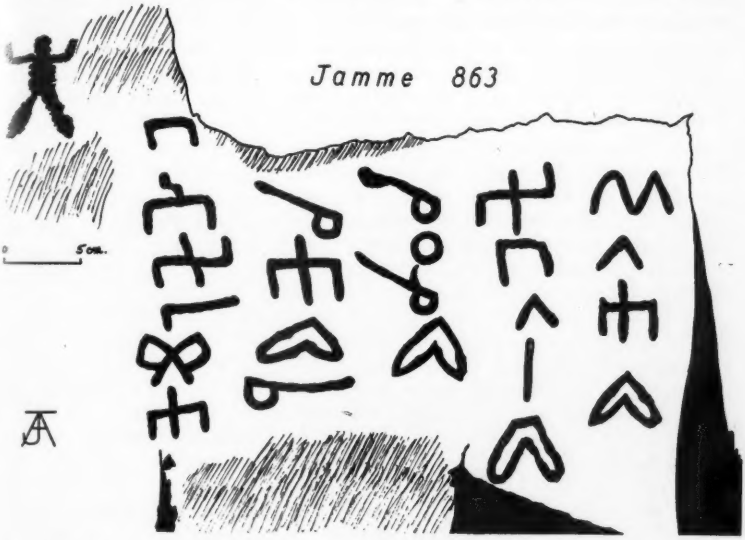
Palaeography. In the following study, I refer to each character by the number of the line followed by a letter indicating the place of the sign

[65] Indeed it is strange to read in *Encyclopaedia Britannica* (1950), Vol. 9, p. 524 the following passage written by Brig. E. H. Kelly (Royal Engineers) and Brig.-Gen. W. Mitchell (USA): "The Asiatics, however, had not the qualities of mind necessary for a systematic development of siegecraft, and it was for the Greeks practically to create this science."

[1] See the sketch map in my book *Pièces épigraphiques de Ḥeid bin 'Aqîl, la nécropole de Timna'* (*Ḥagr Koḥlân*), Louvain, 1952, p. XIX.

it: e. g., 1a and 2b, respectively, refer to line 1, first character, and ne 2, second character.

The following characters are already attested in South-Arabian inscriptions and more often in the graffiti; their reading does not present any difficulty: 1a = *š*; 1b and 2c = *r*; 1c, 4b and 5f = *ḥ*; 2b and 5a = *b*; 3a, and 4d = *y*; 3b = ' and 5b = '. Similarly 1d, 2e, 3d and 4c = *m*; however, 3d and especially 1d with the square angle opposite the two extremities resemble Thamudic *m*. 2d has the value of *l* as in Thamudic inscriptions belonging to the second phase,[2] and also in Safaitic, where this form is quite usual. Both *l* as in 2d and *n* as in 5d are not unknown in South-Arabian graffiti; but they have not always been recognized



as such. Both of them are mentioned in Bellerby-Habban[3] 6e: *tlmtn*.[4] 2d is also attested in, e. g., Bellerby-Habban 1c and 2f.[5] The value of *n* in 5d allows a reasonable interpretation of Bellerby-Habban 3r: *tbnt nmrn ḥn bnḥ Tabnat Nimrân. Ḥunn Banuḥ*.[6]

[2] See A. Van Den Branden, *Les inscriptions thamoudéennes*, Louvain, 1950, pl. I, 5.

[3] After studying this collection of graffiti, I have many other remarks and corrections for which there is no space here, e. g. Bellerby-Habban 1b: *br* instead of *'m*; 1d: *ksm* is as possible as *msk*; 1g: the inset may be interpreted as the monogram of *ṣbn*; etc.

[4] *Le Muséon*, 62 (1949), pp. 113 and 120. G. Ryckmans reads *t(l)mt(m)* and writes in the commentary: "Lecture douteuse . . . *tlmtm* . . . lire *tymtm*" (*l. c.*, p. 120).

[5] *L. c.*, pp. 105 and 113; 63 and 107.

[6] *L. c.*, pp. 63 and 112-114. G. Ryckmans read *trbt* [*bn*] *mr* [*b*][*n*] *ṣḥ* [*bn*] *rbḥ*

2d and 5c, which are connected with 5e, have the value of $\underline{d}$ becaus the presence of $\underline{d}$ after a personal name is quite usual to introduc family, clan or tribe name and also because the formula $b'\underline{d}n\,(/)\,'r$ at the end of small Qatabanian inscriptions is well known; see, e. g RÉS 3516/3 and several rock inscriptions from the country of Mukeras; thus it would not be surprising to find a similar expression in line 5 where the first two letters are b'. As a matter of fact 2a contains th four elements of the ordinary lettering of $\underline{d}$, namely two long and tw short strokes.—The tracing of 5e reproduced in the drawing is exact an accurate; the drawing I made from the stone has been carefully con trolled on the Kodachrome slides; however, the difference in colo between the lower part and the two sides is very slight, and some tim is required to distinguish the tracing on the slides. With the value o $\underline{d}$ which I give to 2a and 5c, 5e may be interpreted as the monogram of $\underline{d}t$: t is formed by the two central curved strokes, and the two angular left and right halves of $\underline{d}$ are simply added on the upper sides of t in order to complete the squares.

3c[7] is to be interpreted as separate from 3b although they are very close to each other. This character shows a small hook added to a y identical with those of 3a, 4a and 4d, and could possibly be read $ṣ$ in comparison with the ordinary Safaitic form and a Thamudic $ṣ$ where one small stroke is added at the bottom of the free stroke. However it seems probable that this letter is $ẓ$, if compared with the ordinary South-Arabian $ẓ$.

Text.

5	4	3	2	1		
b						
'	*y*	*y*	*d*	*š*	1	*Šarḥum,*
d	*h*	'	*b*	*r*	2	*he of [the family of] Barlum,*
n	*m*	*ẓ*	*r*	*ḥ*	3	*respects [and]*
dt	*y*	*m*	*l*	*m*	4	*protects*
ḥ			*m*		5	*in obedience to Dât-Ḥ[imyâm].*

and translates "Taribat, fils de Murr, fils de Ṣaḥḥ, fils de Rabiḥ." The lettering of the sixth sign from the left is quite different from that of the other letters and does belong to that of the two *wasm* on the right of the text; the letter which he reads as *r* is a common form of *b*; the small dot inside a few letters is certainly not part of the letter (see my book *Pièces épigraphiques*, p. 76 and especially the unpublished Jamme 516 in my paper "Inscriptions sud-arabes de la collection Ettore Rossi" [to be printed]); finally G. Ryckmans' interpretation presents an example of a genealogy mentioning three ancestors, which is quite unusual in South Arabian. Our interpretation as *n* of the character read as *b* by G. Ryckmans clears up the meaning of the graffito. The personal name *ḥn* is known in Thamudic, Safaitic, and Arabic; for *bnḥ*, cf. the Arabic personal name Bânûḥ (*Vocabulaire . . des noms des indigènes . . . de l'Algérie*, Algiers, 1891, p. 26 B). If one still prefers to consider the sixth sign as a letter—against the palaeography—he could read *ṣḥn* instead of *ḥn* and translate "Tabnat Nimrân struck Banuḥ" (see Arabic *ṣaḥana* "to strike").

[7] See my paper "Les inscriptions rupestres de la région de Mukérâs," in *Académie Royale de Belgique. Bulletin de la Classe des Lettres et des Sciences Morales et Politiques*, 5e série, t. XXXVII (1951), pp. 310-311.

mmentary. L. 1: *šrḥm*, well-known Sabaean personal name; see, e. g., CIH 241/1. 2: *brlm*, see the Thamudic personal name *brl* in A. VAN DEN BRANDEN, *l. c.*, g., p. 137: HU 260/1; the personal name *brlm* is also found in Jamme 567/2, 14 and 17 (unpublished text from Mâreb) and possibly in RÉS 3908/1. L. 3-4: *zm yḥmy*: verbs contrasting in form with the nominal formation of both *šrḥm* d *brlm* in lines 1-2; they are asyndetically united; for *y'ẓm*, cf. Arabic *'aẓuma*, ond form "to consider great; honor; respect; venerate"; the form *'aẓama* ms to be attested in CIH 318/6; for *yḥmy* cf. Arabic *ḥamâ'* "to defend; protect." 5: *b'ḏnḏth*: *ḥ* may be considered as the intial of *ḥmym*; see *b'ḏn/ḏt/ḥ*[*mym*] RÉS 3917/3-[4].

ate. Any attempt to date the rock inscription Jamme 863 is difficult t only because this text is the only example of this kind I have ever en, but also because many questions of South-Arabian history and alaeography are still open. Nevertheless, a solution seems possible on he basis of the four elements given by the text itself: the order and irection of the lines, the lettering of the characters, and finally the ifference in color.

The order and direction of the lines are perfectly consistent and not found in any other inscriptions or graffiti. Among the rock inscriptions I copied in the country of Mukeras, there are many which are unusual in one or more respects, but none of them is as perfectly regular in its way as Jamme 863. Besides, there are several one-line graffiti scratched from top to bottom, e. g., Bellerby-Habban [8] 4v, 5a and 6d-f; [9] the last but one is especially interesting. These two series of texts together with all the other graffiti in which both disposition and direction of lines entirely disagree with those of previously known inscriptions, cannot be explained by the standard arrangement of lines of the known inscriptions; on the contrary, they prove that in a period anterior to that of already known texts there was much more liberty with regard to these two points, and it is not at all impossible that several of those texts also belong to this early period. It is certainly possible that Jamme 863, which is quite inexplicable on the basis of previously known facts, may be an example of this multiform prototype.

As for palaeography, neither *l* or *n* is new, but their lettering needs an explanation for the present text as well as for the graffiti where these particular forms occur. It is practically impossible to admit direct influence from Safaitic on South Arabian as regards *l*. In addition, the form of *ḏ* is easily explained if it is admitted that Jamme 863 precedes the period of the oldest previously known inscriptions; on the contrary, if it is admitted that Jamme 863 does belong to the period of otherwise known historical texts, the form of *ḏ* would be inexplicable. On the other hand, the letters of Jamme 863 may be divided into two groups as far as their position is concerned. (a) The position of *', b, ḥ, l* and *t* (in the monogram) is materially identical with that of those letters in ordinary inscriptions in spite of the difference in the direction of the lines. (b) The relation between the position of the letters and the

[8] *Le Muséon, l. c.*, p. 114, lines 4-5: read "Bellerby-Habban 4" instead of Bellerby-4."

[9] *L. c.*, respectively pp. 63 and 117; 63 and 118; 113 and 120-121.

direction of the lines is the same in Jamme 863 and in ordinary inscriptions for the following letters: *y*, *ẓ*, *m*, *r* and *š*, but *y* (3a and 4a) and *ẓ* are reversed. There is no explanation for this mixture in the position of the letters and especially in the case of *l* and *n*. However line 3, for instance, shows that the letters were engraved in such a way that their long stroke would be at right angles to the direction of the line except in the case of *l*. Such a mixture of principles concerning the position of the letters in relation to the direction of the lines is also attested in several graffiti and in many rock inscriptions from the country of Mukeras; this fact poses the same problem with regard to ordinary inscriptions as that of the order and the direction of the lines (see above). Again here we must admit that ordinary inscriptions are useless to solve the question. On the contrary, these facts prove that, previous to the period in which the standard position of the letters was fixed, the position of letters was almost completely free.

The difference in color also makes it possible to date Jamme 863 to an early period. The older a rock inscription or a graffito is, the slighter is the difference in color. This principle, however, might lead one into error if the exact location of the text is not carefully taken into consideration. For instance, is the text all day long in the sun or is it always in shadow? The difference in color will of course, disappear much sooner in the former case than in the latter. Many of the rock inscriptions I copied on Jebel Seddâh (country of Mukeras) are as black as the rock itself, for they lie flat on the ground under the burning rays of the sun from dawn to dusk. Jamme 544 is also as black as the rock itself; this text, engraved on a vertical eastward-facing rock wall on Jebel Balaq (near Mâreb), belongs to the middle of the sixth century A. D. according to the date in the text. On the other hand I have seen in the Wâdî Beiḥân extremely fresh South-Arabian graffiti which are always in shadow and in which the difference in color is perfect.[10] The case of Jamme 863 is not quite similar. The rock wall faces southward and is almost vertical, with the top leaning forward; on the other hand this wall is slightly southwest on the left and slightly northeast on the right. The right half of the text is practically always in shadow yet in spite of that the difference in color is very slight. The left half only receives the rays of the sun for a little time in the morning and the difference in color is practically non-existent. The preceding facts permit one to consider Jamme 863 as very old.

Since all ordinary inscriptions have fundamentally identical characteristics, we have to reckon with the oldest texts, those from Saba'. "The beginning of Sabaean *MKRB* history is fixed by the well-known Assyrian synchronisms in the reigns of Sargon and his son Sennacherib about 700 B. C."; [11] W. F. Albright's statement follows the common opinion, with which H. von Wissmann and M. Höfner agree in their

[10] Cp. *Archiv für Orientforschung*, 16 (1952), p. 282.

[11] W. F. Albright, "The Chronology of Ancient South Arabia in the Light of the First Campaign of Excavation," in *BASOR*, No. 110, pp. 10 f.

recent publication.[12] This opinion certainly was *possessio pacata* till F. L. Beeston's recent article.[13] Since this point is important for the date of Jamme 863, I shall discuss Beeston's opinion briefly.

According to Beeston, " there is no positive indication " that the two Sabaean rulers mentioned in the Assyrian texts " are identical with any of the *mkrb* rulers known to us from the South Arabian inscriptions "; [14] and since it is probable that the number of *mukarrib* did not exceed eighteen,[15] " allowing an average of between fifteen and twenty years for each reign, we should expect the *mkrb* dynasty to cover a period slightly over three centuries—roughly speaking, the 6th-4th centuries B. C." [15] The reason for choosing the 4th century B. C. is given after the study of the kings belonging to the so-called traditional dynasty: " We have to reckon effectively with only eleven kings after *Kb'l Wtr Dmr'ly* down to the accession of *Ns'krb Yh'mn*. On the basis of the usual average reign, this allows approximately two centuries for the dynasty, i. e. roughly speaking the 3rd and the 2nd centuries B. C. It is on this ground that I would assign the last *mkrb* to the latter half of the 4th century B. C." [16] Beeston's statement is in my opinion far from being convincing.

First of all, in order to deny the value of the Assyrian synchronisms, Beeston has to suppose that Yaṭa"amar, the first Sabaean ruler mentioned in these synchronisms, must have died shortly after 715, while Karib'il began to reign shortly before 685, so that another reign might be inserted between Yaṭa"amar and Karib'il. Beeston says that " the chances are at least 50 per cent that Karibailu was not the immediate successor of Sargon's Itiamra." [17] If " the chances are at least 50 per cent," we certainly cannot exclude the possibility of these synchronisms definitively and Beeston's argument is not convincing.

Secondly, the so-called average length of reign in South Arabia is pure hypothesis, since the number of sovereigns is still unknown and both the beginning and the end of the *mukarrib* period are uncertain. The histories of many countries show both extremely long and very short reigns; [18] there is no reason why such cases might not have been found in the *mukarrib* period as well as in royal times. As a matter of fact, Jamme 555 (see below) says that one man was administrator for five kings! Besides, Beeston's calculation does not sufficiently reckon with the possibility of gaps. His proposed list of *mukarribs* [19] allows only one gap, though he admits that " in only one case do the texts

[12] *Beiträge zur historischen Geographie des vorislamischen Südarabien*, Wiesbaden, 1953, p. 7.

[13] " Problems of Sabaean Chronology," in *BSOAS*, 1954, XVI/1, pp. 42-52.

[14] *L. c.*, p. 43.

[15] *L. c.*, p. 44.

[16] *L. c.*, p. 52.

[17] *L. c.*, p. 43.

[18] One example: the throne of England was occupied by only *three* persons between 1837 and 1936. I do not think that one would dare to speak of an average length of reign when we are dealing with three reigns so different in length as 64, 9 and 26 years!

[19] " Problems," p. 49.

give us uncontrovertible evidence of three successive generations of *mkrb* rulers. Beyond this we are left to conjecture." [20] It seems obvious that we are very far from having the names of all South-Arabian rulers and also that gaps certainly exist in South-Arabian history in the present state of our knowledge.

The history of the enclosure wall of the temple Maḥram Bilqîs near Mâreb is important for the present question. Its actual wall is supposed to be related to the Achaemenian period, i. e. the 5th century B. C., which perfectly suits Albright's proposed date (circa 450 B. C.) for the beginning of the Sabaean monarchy.[21] CIH 957 says that this wall was built by the *mukarrib* Yada'il Ḏariḥ; [22] I did not see this text when I was working in Mâreb. But there are other inscriptions engraved on this wall, e. g. CIH 374 (Jamme 551) and 375 (Jamme 550), which belong to the very beginning of the Sabaean monarchy. These two inscriptions, which mention the dedication of different parts of this wall to the lunar god 'Ilumquh, implicitly allude to a rebuilding of the wall. If these inscriptions were engraved on the very wall built by Yada'il Ḏariḥ, they would make no sense, because there would be no reason for the authors of CIH 374 and 375 to dedicate parts of a wall already existing. These texts make good sense if it is admitted that their authors *rebuilt* at least a few parts of the wall. This rebuilding is certain according to Jamme 554, another text engraved on the same wall: . . . */bnyy/whḥdt/* . . . . . *have built and renewed* . . . ; this text belongs to the same period as CIH 375, because one of the two subjects of the verbs is Ḏamarkarib, who was, according to Jamme 555, administrator of five kings (between circa 450 and 400 B. C.) three of them also mentioned in CIH 375. Between the beginning of the royal period to which belong CIH 374, 375, Jamme 554 and 555 and the first *mukarrib*, we have to insert the whole *mukarrib* period. Consequently, the beginning of the *mukarrib* period may easily be referred to the 8th century B. C. as commonly proposed. Finally, it is worth recalling that the temple of Maḥram Bilqîs itself is older than its enclosure wall, since the inscriptions only deal with the building and the rebuilding of the enclosure wall, and not of the temple itself.

In conclusion, Jamme 863 may safely be referred to the 9th or the 10th century B. C.[23]

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[20] *L. c.*, p. 48.

[21] *JAOS*, 73 (1953), p. 40.

[22] In his above-mentioned article, A. F. L. Beeston says that this *mukarrib* "built the sanctuary of Ḥaram Bilqis near Marib (C. 957)" (p. 45); but the text has *gn'* "built the enclosure wall of" and not *bny* "built."

[23] [For lack of space I have deferred my own remarks on this important inscription, which has been so carefully published by Father Jamme, to the April BULLETIN. —W. F. A.]

THREE NEW BOOKS OF GENERAL INTEREST

While the editor must express his regret for unforeseen delay in reviewing books which have reached him in his dual capacity of scholar and editor, there are three recently published books which should be included in the few inches of space at our disposal in this issue. All three can be obtained at list price (and discount to members) by writing to the New Haven office of the Schools. To avoid discrimination we shall list them in the order of their size.

Professor James B. Pritchard now follows his invaluable volume on *Ancient Near Eastern Texts Relating to the Old Testament* (Princeton University Press, 1950, with a new, revised edition soon to appear) by a companion volume in the same format, *The Ancient Near East in Pictures Relating to the Old Testament* (Princeton, 1954, $20.00). With indefatigable persistence, aided by the advice of leading scholars in the various fields represented, Pritchard has gathered 769 cuts on 240 plates, nearly all reproduced from excellent photographs. There are also 90 quarto pages in two columns which are devoted to a detailed description and bibliography of each illustration. Nor should we forget four maps and a comprehensive index. Opinions may differ about the selection of material, but no one can fail to recognize the extraordinary utility of this collection of well arranged and documented material for scholars, students, and laymen alike.

There have been many complaints about the lack of information on Dr. Wendell Phillips' four expeditions to South Arabia in 1950-1953, during which the editor was chief archaeologist in 1950-51, and Dr. Frank P. Albright (not related to him) acted in the same capacity in 1952-53. Now we have Wendell Phillips' own narrative, *Qataban and Sheba: Exploring the Ancient Kingdoms on the Biblical Spice Routes of Arabia* (New York, Harcourt Brace & Co., 1955, pp. xvi + 362, with nearly a hundred illustrations, $5.00). The text is fascinating and often reads like an adventure story, but the editor can testify to the constant revision of details and to the large part which he, Drs. Frank Albright, Albert Jamme, W. F., and others have taken in checking data and in providing hitherto unpublished material. The superb illustrations are largely due to the skill of Mr. William B. Terry and the members of successive photographic staffs. Scholars will find masses of hitherto unpublished data in text and cuts, together with the latest chronological and alphabet charts. (It may be noted that a staff of three full-time scholars, together with a dozen part-time collaborators, is now working on the preparation of this vast material for publication under the general supervision of the editor, with funds generously contributed by the A. W. Mellon Educational and Charitable Trust and the Sarah Mellon Scaife Foundation, both of Pittsburgh.) The present book has been printed simultaneously in England, where it is published by Victor Gollancz; advance notices in Great Britain have been enthusiastic.

The United States Junior Chamber of Commerce has conceived the happy idea of publishing a pictorial account of the story of our faith as it developed in the Holy Land. For this purpose it selected Professor John C. Trever, well known to all members of the Schools and readers of the BULLETIN for the part he played in bringing the Dead Sea Scrolls to light. Under the title of *Cradle of Our Faith: The Holy Land* (U. S. Junior Chamber of Commerce, Wichita, Kansas, 1954, pp. xiv + 85, with excellent reproductions of some 75 color photographs of scenes, buildings, and antiquities, $3.75), the book will be a joy to all who have visited Palestine or who hope to visit it. Strictly neutral in controversial questions, the value of the book has been recognized by leading Catholics, Jews, Muslims, and Protestants. Dr. Trever has done a splendid job in collecting the material, much of which we owe to his own photographic skill, and in writing the text.

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